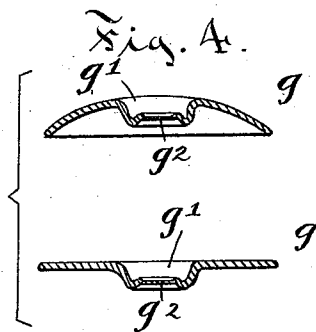
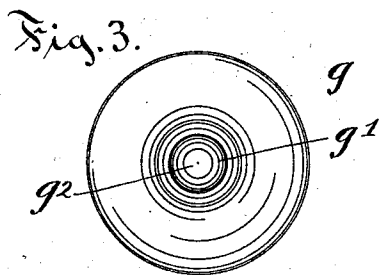
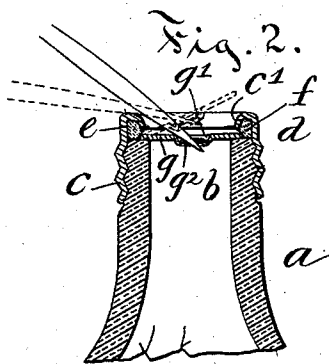
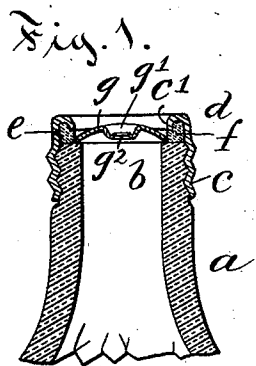


(No Model.)

F. B. THATCHER.
BOTTLE STOPPER.

No. 532,499.

Patented Jan. 15, 1895.



Witnesses:
J. A. Cantin
Arthur B. Jenkins.

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Attorney.

UNITED STATES PATENT OFFICE.

FREDERICK B. THATCHER, OF PROVIDENCE, RHODE ISLAND.

BOTTLE - STOPPER.

SPECIFICATION forming part of Letters Patent No. 532,499, dated January 15, 1895.

Application filed September 15, 1894. Serial No. 523,121. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK B. THATCHER, a citizen of the United States, and a resident of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful improvements in Bottle-Stoppers, of which the following is a full, clear, and exact description, whereby any one skilled in the art can make and use the same.

My invention relates to the class of devices which are more particularly adapted to closing bottles, and the object of my improvement is to provide a bottle stopper which shall be cheap and simple in construction, and effective in operation as a closing or stoppling device while requiring only readily accessible means for opening or removing the stopple.

To this end my invention consists in the details of the several parts making up the bottle stopper as a whole and in the combination of such parts as more particularly hereinafter described and pointed out in the claim.

In my pending application, Serial No. 486,186, the described subject matter of this invention includes in combination in a bottle stopper a thin metallic expansible stopple which is a disk of thin metal adapted to fit within a socket piece and to be expanded against a packing, and my within invention is an improvement on such device in providing a thin center for facilitating the ease of removing the disk while not impairing its strength or utility as a stopple.

Referring to the drawings: Figure 1 is a view in vertical central section of the mouth of a bottle with fastener applied thereto. Fig. 2 is a like view in vertical central section of the bottle and fastener showing the stopple in place and also the method of removing it. Fig. 3 is a detail plan view of the stopple on enlarged scale. Fig. 4 shows the stopple in central section both rounded and flattened and on enlarged scale.

In the accompanying drawings the letter *a* denotes the neck portion and *b* the mouth of a bottle on the outside of which is formed a screw thread or like means for securing to

the bottle the socket piece *c* of the bottle stopper *d*. This socket piece *c* is preferably of thin metal which may be readily cast or spun to the required shape to fit on the bottle at the mouth with a flange *c'* forming a shoulder below which a socket *e* is provided for the packing ring *f* which is preferably of cork, rubber or like suitable packing material.

The bottle stopper as a whole requires the packing socket, and packing ring secured in the socket, and a stopple as *g* which closes the mouth of the bottle. This stopple *g* consists of a thin disk of metal larger in diameter than the mouth of the bottle so that its edge may rest on a firm bearing within the packing ring, and in a position to enable it to be thrust into and against the substance of the packing by flattening or expanding the disk.

The preferred shape of the dish shaped stopple is shown in Fig. 4, the cup or dish shaped form being of a diameter less than the same disk will have when flattened or expanded. The central part of the stopple *g* has a recess *g'* with a thin center *g²* which is of ample strength to resist the outward pressure of fluids within the bottle but can be easily punctured by a sharp pointed implement in the manner illustrated in Fig. 2 of the drawings, the implement being then used as a lever to pry the stopple out of its seat, the edge of the recess *g'* in the stopple forming a fulcrum to support the strain, this forming the special feature of improvement. While the thin center *g²* forms the important feature of the stopple the recess *g'* is not so essential, although it is preferred as tending to protect the thin center from accidents by dropping it below the level of the stopple. The socket piece is preferably screw threaded to fit the thread formed on the outside of the bottle and holds the packing securely in place while providing a construction easily adapted to the renewing of a packing ring when for any reason the latter shall become worn or is of a wrong size or shape to perfectly pack the joint. When the packing ring is in place within the socket the disk is dropped into position with its edges resting on a shoulder opposite the

packing, as illustrated in Fig. 1 of the drawings, and the disk is then flattened by the application of a proper tool and expanded into the position as illustrated in Fig. 2 of the
5 drawings pressing the edge of the disk against the packing and tightly closing the mouth of the bottle.

This bottle stopper as a whole is more particularly adapted in bottling beverages which
10 are put up under pressure and are intended more particularly as summer drinks, which include soda, sarsaparilla, ginger ale, &c.

The main portion of the stopper is usable for a long time while the stopple is used but

once, but this is not objectionable owing to its cheapness.

I claim as my invention—

In a bottle stopper in combination with a packing socket, an annular packing located in the socket, a thin metallic stopple expanded
20 into a seat against the packing and having a thin central portion, all substantially as described.

FREDERICK B. THATCHER.

Witnesses:

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N. W. LITTLEFIELD.