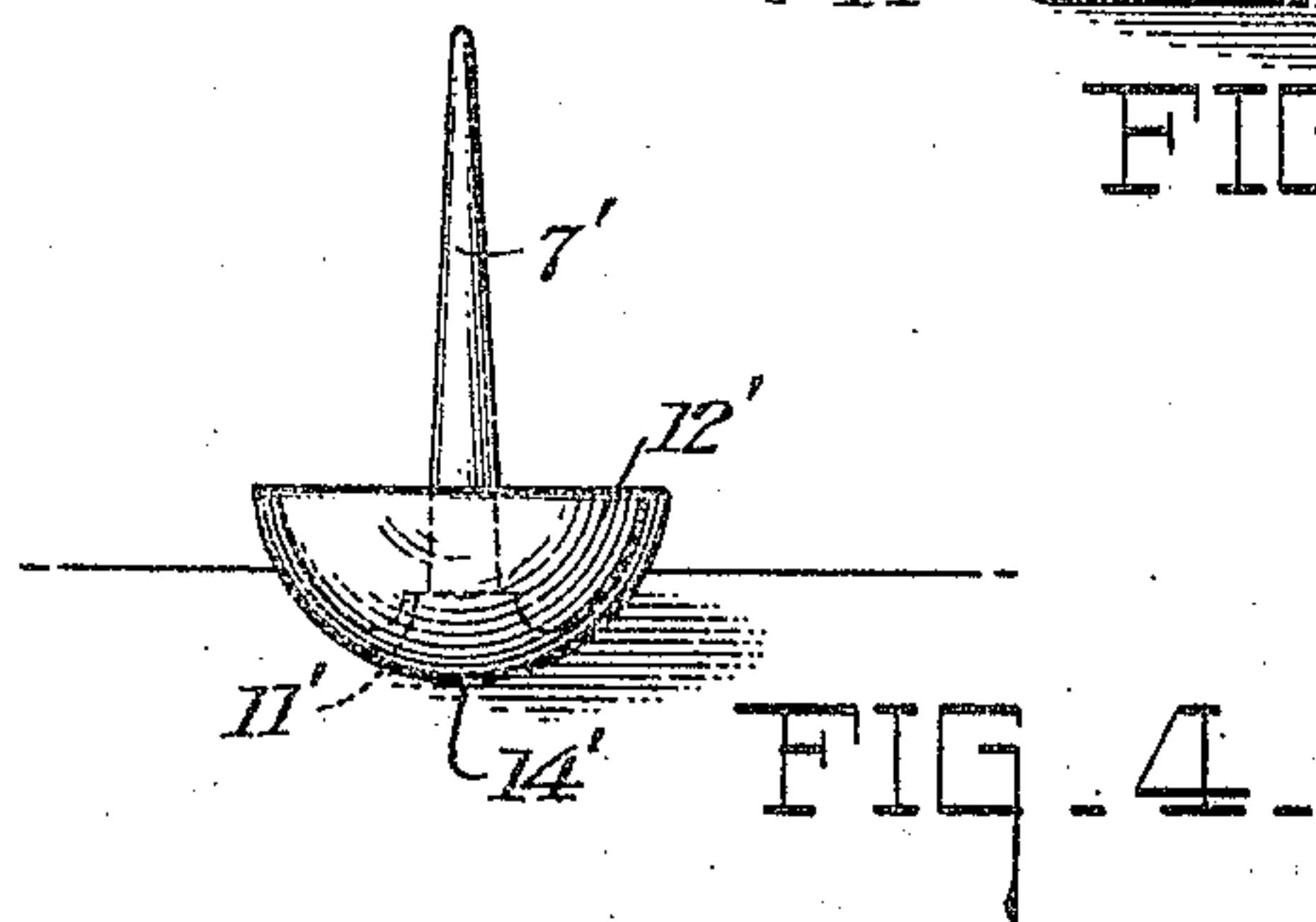
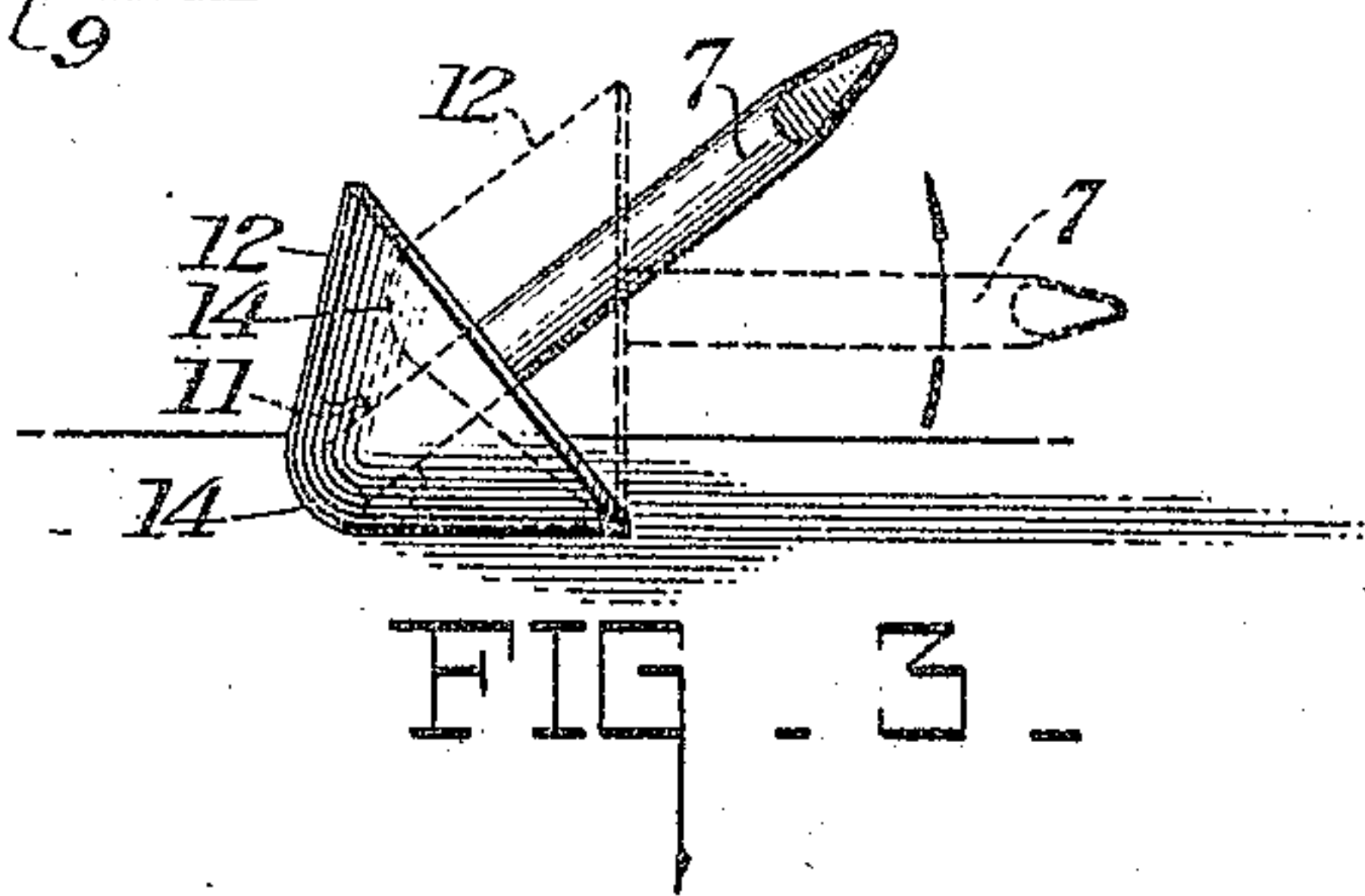
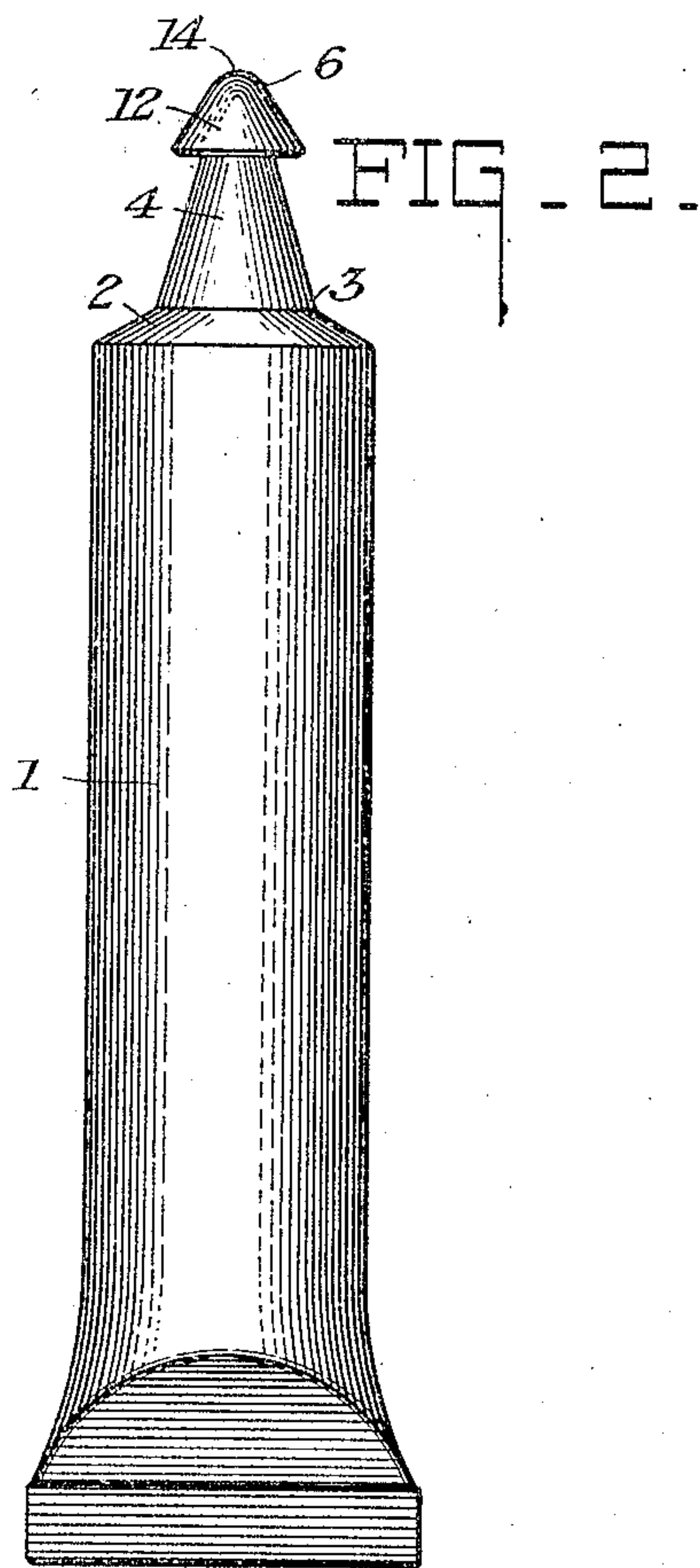
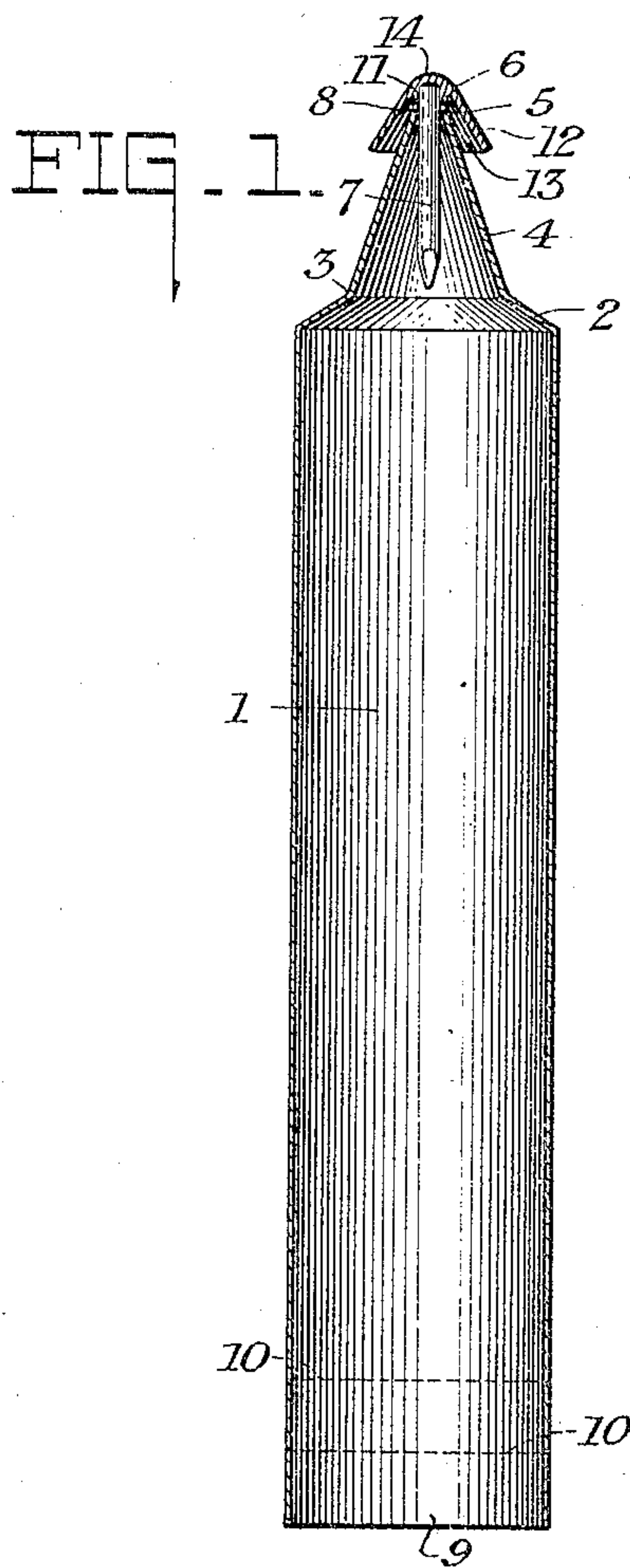


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V. M. PALMER.  
RECEPTACLE AND CLOSURE THEREFOR.  
FILED JULY 9, 1921.



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INVENTOR

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# UNITED STATES PATENT OFFICE.

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## RECEPTACLE AND CLOSURE THEREFOR.

Application filed July 9, 1921. Serial No. 483,596.

*To all whom it may concern:*

Be it known that I, VIRGIL M. PALMER, a citizen of the United States of America, residing at Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Receptacles and Closures Therefor, of which the following is a full, clear, and exact specification.

10 This invention relates to receptacles, and particularly to the closures for receptacles of the collapsible tube type, such as are commonly used to hold glue, paint, tooth paste, and the like.

15 One object of my invention is to provide a closure for a receptacle which can be inserted into the receptacle before filling. Another object is to provide a closure having a guard which will prevent small quantities of the contents of the receptacle from smearing over the exterior of the tube, either in shipping or during the use thereof. Another object is to provide a tube with a nozzle which co-operates with a cap or closure in providing a pocket in which small quantities of waste will collect. A further object is to provide a cap of the class described which will effectually seal the tube. A still further object is to provide a tube 30 having an applying nozzle of small size, so that small quantities of the contents can be applied to the spot desired. A further object is to provide a cap which prevents the glue or other material from soiling the fingers, and a still further object is to provide a cap which will hold the glue covered shank away from a table, providing a flange which catches the waste. To these and other ends the invention resides in certain 40 improvements and combinations of parts, as will be hereinafter fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings in which like reference 45 characters denote like parts throughout:

Fig. 1 is a section through a tube constructed in accordance with, and illustrating, one form of my invention, the tube being ready for filling;

50 Fig. 2 is a side elevation of a tube similar to that shown in Fig. 1 after filling;

Fig. 3 is an enlarged side elevation of the sealing cap removed from the tube, and

Fig. 4 is a similar elevation of a modified 55 form of cap.

I prefer to make this receptacle of soft metal, and form it, as shown in Fig. 1, into an elongated tubular body portion 1, which has a reducing end or collar 2 terminating in the large end 3 of a conical nozzle 4. The 60 small end 5 of this nozzle is preferably left unperforated, so that when the closure or cap 6 is placed in position, the pin 7 will puncture the end 5, forming a tight joint. But, if desired, the aperture 8 in end 5 can be 65 formed with the tube. This aperture forms the application tip from which the glue is applied.

Receptacles of this kind are generally filled through the large open end 9 of tube 70 1, after which the end is folded as on the dashed lines 10—10 to seal the end. As the cap 6 is preferably placed into nozzle 4 before filling, a tight joint is necessary to prevent leakage, particularly when a moist substance is used, such as mucilage or glue. To 75 secure such a joint, the end 5 is cut off flat, so that this portion will seal against a shoulder 11 which surrounds and holds the base of pin 7. The cap 6 has a flange 12 which 80 tapers away from the pin, forming an annular space or pocket 13 around the outside of the conical nozzle 4. Starting from the base, successive sections through the flanges are of gradually increasing diameters. This 85 flange performs three functions: first, it provides a guard covering the waste glue which invariably collects about the application tip 5; second, it provides a base which will hold pin 7 at an angle when removed from the 90 tube and laid upon a flat surface; and, third, the flange provides, with nozzle 4, a capillary pocket in which waste will collect when the cap is on the tube, and likewise forms a pocket for waste from the pin when removed 95 from the tube. In all cases it greatly assists in producing a "pencil" which is clean to handle.

In this specification, where the term "capillary" is used, I intend to designate broadly 100 that peculiar action resulting from a liquid coming into contact with closely spaced metal walls, the retaining action being probably due to varying surface tension in the liquid. In glue the viscosity of the liquid assists in 105 retaining the waste under the flange 12 in pocket 13.

The head 14 of cap 6 is rounded on the outside, and as the metal of the base is heavier than that of the flanges, the tendency 110



of the cap is always to stand with its head near the surface upon which it is laid. Where the flange has straight sides, the weight of the base will cause the head 14 to assume the position shown in Fig. 3. The broken lines and the arrow clearly indicate a position of unstable equilibrium and the direction of movement therefrom. By having the cap constructed as above described there is very little chance of spreading the contents of the tube where it is not wanted. Any glue collecting on the inside of flange 12 will not come into contact with the hands when the tube has been sealed up, as the pocket 13 will take care of a reasonable amount of waste. Flange 12 also forms a convenient handle for manipulating pin 7 as a spreader as well as for inserting it in the tube.

In Fig. 4 I show a modified form of cap wherein a pin 7' is integral with the head 6'. The base 14' is of somewhat larger diameter than in the previously described cap, curving into the flange 12'. This type of cap will always hold the pin 7' erect when laid on a flat surface, as shown in the drawing. The shoulder 11' contacts with the dispensing tip 5 forming a tight joint, and the flange 12' curving away from the pin forms a capillary cup tending to hold the waste glue. When in position to close tube 1, a pocket 13 is formed in between the nozzle 4 and flange 12' effectively covering that part of the glue pencil which is usually sticky from waste glue.

By constructing the cap so that the flange and the pin form converging surfaces, a capillary action occurs which tends to hold drops of glue inside of the cap when removed from the tube. This action is not destroyed by placing the cap on the tube because the conical exterior surface 4 then provides a wall having a converging surface with the flange, thus normally tending to hold drops of waste glue up under the flange, presenting a clean exterior. In this way both the waste from the pin, when the cap is removed, and the waste from the application tip are covered by the flange 12.

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

1. The combination with a container having an application tip with a perforation therein, of a closure for the tip comprising a cap, a pin adapted to enter the perforation in the cap, and a flange on the cap, the flange having a greater diameter than the application tip being adapted to surround the perforated tip in spaced relation therefrom, whereby a capillary pocket is formed between the tip and the flange when the closure is on the tip.

2. The combination with a container having an apertured application tip, of a closure for the aperture comprising a pin, a

flange extending away from the base of the pin being adapted to surround the tip and having a wall of the flange spaced from the application tip when the closure is on the tip, whereby a pocket for waste material collecting on the application tip is formed.

3. The combination with a container having an application tip, with an opening therein, of means for closing said opening consisting of a part adapted to be inserted into the opening, a flange extending from this part encircling the application tip and differing in contour therefrom, thus forming a pocket between the application tip and the flange for containing waste when the closure is on the container, the flange receiving waste from the part insertable into the opening when the closure is removed from the container.

4. The combination of a container consisting of a tube with a perforated application tip, a closure for said tube consisting of a hollow cap, said hollow cap having a contour differing from the contour of the application tip, a pin in said hollow cap adapted for insertion into the perforated tip, a seat about the pin adapted to contact with the end of the perforated tip, said perforated tip being encircled by said hollow cap forming a pocket therebetween.

5. The combination of a container having an application tip, a perforation in the tip, and a closure for said perforation comprising a part insertable into said perforation, and a flange upon said part, there being a pocket of gradually increasing capacity included between the application tip and the flange.

6. The combination of a container having a perforated application tip, a closure for said perforated tip comprising a pin insertable into the perforation, a flange upon one end of the pin, and a rounded base on the flange, the weight of the rounded base being such that it holds the pin at an angle to a flat surface when the closure is removed from the container.

7. The combination with a container having an application tip with a perforation therein, of a closure for the perforation consisting of a pin, a shoulder at the base of the pin adapted to contact with the application tip, and a flange extending from this shoulder, the diameter of the flange progressively increasing from the shoulder outwardly and spaced from the application tip.

8. The combination with a container having an application tip with a perforation therein, of a closure for the perforation consisting of a pin, a shoulder at the base of the pin adapted to contact with the application tip, and a flange flaring outwardly from the shoulder, the weight of the seat tending to rotate the pin upon the flange until the pin



is brought to an angle to a flat surface upon which the closure is laid.

5 9. The combination with a container having an application tip with a perforation therein, of a closure for the perforation consisting of a pin, a base at one end of the pin, and a flange upon the base presenting a smooth exterior of gradually increasing di-

10 being spaced from the application tip.  
10. The combination with a container having an application tip with a perforation therein, of a closure for the perforation consisting of a pin, a base at one end of the pin,  
15 and a flange upon the base presenting a smooth exterior of gradually increasing di-

ameter from the base, the base being of greater weight than the pin.

11. The combination with a container having an application tip with a perfora- 20 tion therein, of a closure for the perforation consisting of a pin, a base at one end of the pin, the sides of the base presenting a smooth exterior of gradually increasing diameter from the bottom of the base, and 25 the center of gravity of the closure being between the greatest width of the base and the bottom thereof.

Signed at Rochester, New York, this first day of July, 1921.

VIRGIL M. PALMER.