April 28, 1931. R. L. TONE 1,802,359

DISPENSING DEVICE

Filed July 30, 1928

Fig. 2.

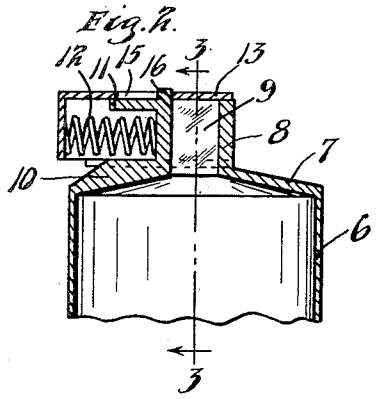


Fig. 3.

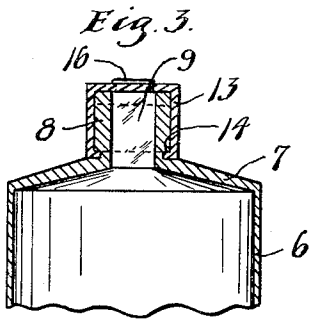


Fig. 1.

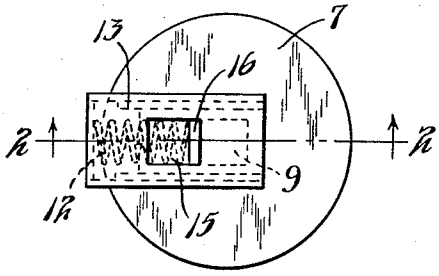


Fig. 5.

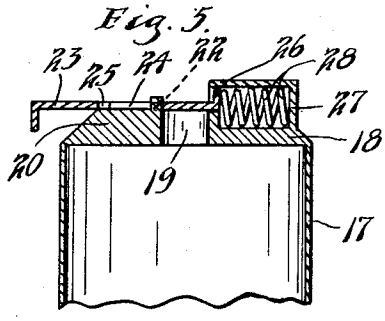
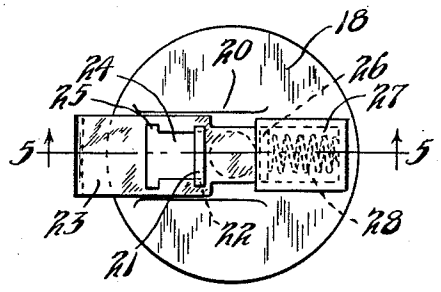


Fig. 4.



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UNITED STATES PATENT OFFICE

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DISPENSING DEVICE

Application filed July 30, 1928. Serial No. 296,112.

This invention relates to dispensing devices and automatic closures therefor.

It is the object of the invention to provide a novel and improved closure plate for use on a paste tube, which will automatically close the dispensing opening in the tube after a quantity of paste has been pressed therefrom.

To this end, the invention consists in the novel parts and novel combinations of parts hereinafter defined in the claims, and described in the following specification, made in connection with the accompanying drawings, wherein like reference characters refer to the same or similar parts throughout the various views and, in which,

Fig. 1 is a plan view of one embodiment of the present invention;

Fig. 2 is a vertical section taken on the line 2—2 of Fig. 1, as is indicated by the arrows;

Fig. 3 is a vertical section taken on the line 3—3 of Fig. 2, as is indicated by the arrows;

Fig. 4 is a plan view of a second embodiment of the present invention, and

Fig. 5 is a vertical section taken on the line 5—5 of Fig. 4, as is indicated by the arrows.

Referring to the drawings, and particularly to Figs. 1, 2 and 3. A paste tube 6 is illustrated having a centrally and slightly upwardly tapered neck portion 7 and an upstanding dispensing portion 8 having a dispensing opening 9 therethrough. The dispensing portion 8 projects vertically upwardly from the central portion of neck 7 and, as is illustrated in the drawings, the portion 8 is substantially square in horizontal cross section. The neck 7 is built up at one side of the tube to form a built-up portion 10 which projects from one side of the upstanding dispensing portion 8 adjacent the base thereof, and has a flat surface at its top side which extends at right angles to one side of the dispensing portion 8. An arm 11 projects from the top of the dispensing portion 8 at the same side thereof, as the built-up portion 10 and the arm 11 also extends at right angles from the dispensing portion, so that a flat surface will be formed by the upper side of the arm which is flush with the top of the dispensing portion 8. The lower side of the arm 11, the upper side of the built-up portion 10 and the left side of the upstanding dispensing portion 8, as viewed in the drawings, will form an open sided socket against which one end of a short pressure coiled spring 12 bears. A closure plate 13 fits over the top of the upstanding portion 8 and the arm 11, so that the lower side of the plate will be in sliding engagement with the top of the upstanding portion and with the arm 11. The plate 13 has side wings bent at right angles to the upper portion of the plate, and these side wings project downwardly adjacent opposite sides of the upstanding portion 8 and the wings have inwardly extending flanges at their lower edges which fit within grooves 14 cut in the base of the upstanding portion 8 at opposite sides thereof. The plate 13 also has a wing at its outer end which projects downwardly therefrom at right angles to the upper portion of the plate, and one end of the spring 12 is adapted to bear against the inner side of this end wing. A rectangular opening 15 is provided through the upper portion of the plate 13 at approximately the center thereof, and this opening is slightly longer than the width of the dispensing opening 9. A lip 16 formed integral with and projecting upwardly from one side of the top of the upstanding portion 8, extends through the opening 15.

Under normal circumstances, the spring 12 will hold the closure plate 13, so that a solid portion thereof is extended over the dispensing opening 9 to close the same, and the lip 16 will prevent the closure plate from being projected to a position beyond a point where the flanges on the side wings of the plate will ride out of the grooves 14. The spring 12 will be incased for the major portion of all four sides by the socket formed by the arm 11, built-up portion 10 and the side of the upstanding portion 8, and by the end wing of the closure plate. When it is desired to press some paste through the dispensing opening 9 of the paste tube, the user will press the end wing of the plate

13 inwardly against the tension of the spring 12, thereby causing the opening 15 to be alined with the dispensing opening 9, whereupon the paste can be squeezed from the tube 6 through the openings 9 and 15. By releasing the end wing of the plate 13, the spring 12 will force the plate to the left, as viewed in Figs. 1 and 2 of the drawings, thereby causing a solid portion of the plate 13 to overlie and close the dispensing opening 9. As the plate 13 is moved to either the right or left, as viewed in Figs. 1 and 2, the lip 16 will act to clean and clear the opening 15 from any paste or foreign substance that may have lodged in the opening. It will, therefore, be impossible for paste to clog and harden in the opening 15, to prevent the free use of the device.

In Figs. 4 and 5, a slightly different embodiment of the invention is shown. Referring to these two drawings, a paste tube 17 is illustrated having a neck and top portion 18, a dispensing opening 19 projecting centrally through the neck and top portion, and a built-up portion 20 projecting upwardly from the neck 18 about the dispensing opening and projecting laterally from one side of the dispensing opening. A lip 21 projects upwardly from the built-up portion 20 adjacent the dispensing opening 19 and this lip is provided at either side thereof, with short arms at its upper end which project outwardly to form grooves 22 between the built-up portion 20 and the arm. A closure plate 23 is provided and this plate, substantially at its central portion, is provided with a rectangular opening 24 of a width equal to the spacing between the grooves 22. The plate 23 is rabbeted at 25 at either side of the outer end of the opening 24, to permit the plate to be slipped over the lip 21, whereupon the plate can be fitted in grooves 22 so that the short arms at either side of the lip will overhang a portion of the plate, to retain the plate in place on the built-up portion 20 for sliding movement thereover. At its outer end, the plate is provided with a downturned flange, while at its inner end the plate is provided with an upturned flange 26. A casing 27, formed of light metal incases a coiled pressure spring 28 which bears against the outer end of the casing and the flange 26, and this casing is secured to the neck 18. The casing is bent downwardly over the spring 28 and over the flange 26 after the spring and flange have been inserted within the chamber formed by the casing.

Under normal circumstances, the spring 28 will hold the plate 23 extended to the left so that a solid portion thereof fits directly over the dispensing opening 19, to close the same. When it is desired to eject paste from the tube 17, the user can press against the outer end of the plate 23, thereby sliding the plate to the right as viewed in Figs. 4 and 5, to cause the opening 24 to be alined with the dispensing opening 19, whereupon the paste may be ejected from the tube 17 through the openings 19 and 25. Upon releasing the plate 23, the spring 28 will again force the plate to the left, thereby closing the dispensing opening. When the plate is moved either to the right or left, the lip 21 will act to clean and clear the opening 24, to prevent the accumulation and hardening of paste therein.

It will be seen that a simple and efficient dispensing device is provided which can be successfully used on paste tubes and containers of similar type, which are frequently used. The bother and trouble of screwing on a cap on such a tube is eliminated and yet the tube will be effectively closed when not in use.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the various parts, without departing from the scope of the present invention.

What is claimed is:

1. A dispensing device comprising, a paste tube, a top for said tube having a dispensing opening therethrough, a plate fitting over said top to normally close said opening, said plate having an opening therethrough and being slidably mounted on said top to aline the opening in said plate with said dispensing opening, and means on said top for clearing the opening in said plate as the plate is slid.

2. A dispensing device comprising, a paste tube, a top for said tube having a dispensing opening therethrough, a plate fitting over said top to normally close said opening, said plate having an opening therethrough and being slidably mounted on said top to aline the opening in said plate with said dispensing opening, and a projecting lip on said top extending through said opening in said plate for clearing the opening therein as the plate is slid.

3. A dispensing device comprising, a paste tube, a top for said tube having an upstanding portion with a dispensing opening therethrough, said upstanding portion having an arm projecting substantially horizontally outwardly from the upper side thereof, and said top having a horizontal portion vertically spaced below said arm, a plate fitting over said top, said plate having wings at the sides thereof fitting outwardly adjacent the edges of said arm and said horizontal portions spaced from said arm, and said plate having a downwardly extending wing at one end thereof, a spring interposed between said last mentioned wing and said upstanding portion of said top between said arm and said spaced horizontal portion, said spring acting to normal-

ly hold said plate disposed over the dispensing opening in said upstanding portion to close the same, said plate having an opening through its upper side adapted to be alined with said dispensing opening when said plate is slid inwardly on the upper side of said upstanding portion against the tension of said spring.

4. A dispensing cover for a paste tube comprising a plate slidably mounted over the dispensing opening in a paste tube for sliding movement over the top of the tube above the dispensing opening, a spring bearing at one end against a portion of said plate and bearing at its other end against a portion of said tube, said plate having an opening in its upper side adapted to be normally forced out of alinement with the dispensing opening in the tube by said spring but being adapted to be alined with the dispensing opening by sliding movement of said plate against the tension of said spring, and means for clearing the opening in said plate as the plate is moved.

In testimony whereof I affix my signature.

ROBERT L. TONE.