

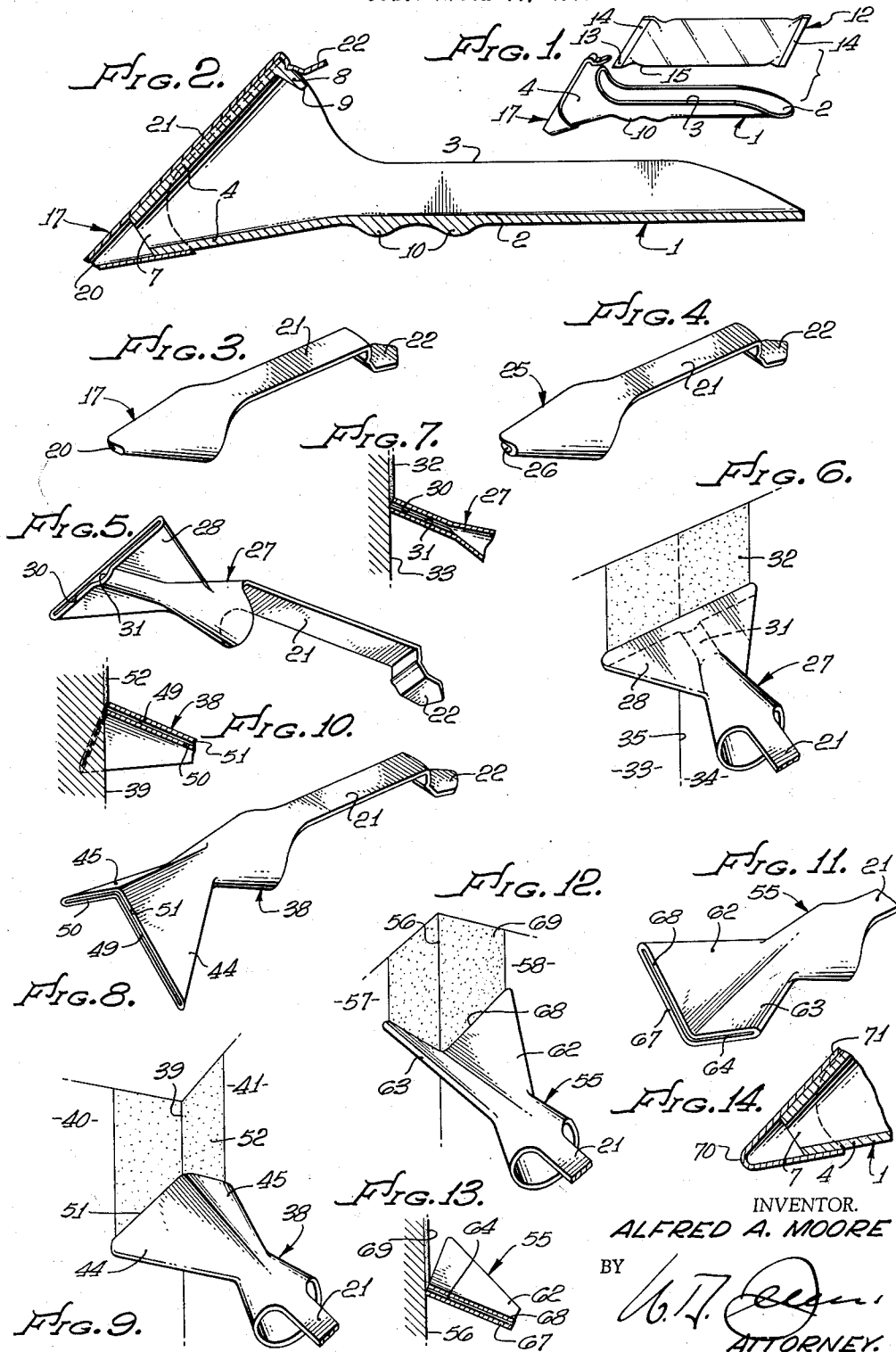
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CRACK FILLING DISPENSER

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CRACK FILLING DISPENSER

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This invention relates to dispensing holders for collapsible containers of fluent material and the like and more particularly to an improved combined holder and detachable nozzle.

The present application is a continuation-in-part of co-pending application Serial No. 655,563, entitled Collapsible Container and Dispensing Holder Therefor, filed April 29, 1957, now Patent No. 2,944,706, dated July 12, 1960.

It has been common practice for many years to package fluent materials of various types in collapsible tubular containers to be dispensed under controlled conditions and in such manner that the issuing stream can be used in the manner and quantity required for the purpose at hand. While it is possible to dispense the contents of such containers entirely by hand, this is unsatisfactory, inconvenient and uneconomical for many purposes. Dispensing holders have been devised for use with containers filled with caulking compound, putty and the like fluent materials and while serving useful purposes have many shortcomings and disadvantages which it is the purpose of this invention to overcome. In general the devices referred to are bulky, heavy, difficult to manipulate and their cost frequently exceeds that of the fluent material and its container by several times.

The present invention avoids the shortcomings referred to by providing a simple holder for a specially designed inexpensive collapsible container and having an integral discharge outlet or nozzle at one end adapted to receive selectively a plurality of easily detachable dispensing nozzles of various types according to the surface to which the fluent material is to apply. The assembly is adapted to be held in the user's hand and is so formed that the user's fingers can collapse the container and dispense the contents precisely as required for the work at hand. The tip end of the container, when severed, provides a discharge opening positioned to register with the holder's integral discharge outlet to the end that the contents can be dispensed directly through the detachable nozzle to a waiting surface which may be a crevice having regular or irregularly shaped boundaries formed, for example, by edges of adjacent wall surfaces. The dispensing holder can be manipulated to direct the material as desired.

Accordingly, it is a primary object of this invention to provide an improved holder for a collapsible container useful in dispensing the container contents under controlled conditions.

It is another object of the invention to provide a simple dispensing holder for containers of fluent material to be held in the user's hand and adapted to be used selectively with dispensing nozzles of various configurations according to the surface to which the fluent material is to be applied.

These and other more specific objects will appear upon reading the following specification and claims and upon considering in connection therewith the attached drawing to which they relate.

Referring now to the drawing in which a preferred embodiment of the invention is illustrated:

FIGURE 1 is a perspective view of a holder for collapsible containers on which a detachable discharge nozzle is fitted;

FIGURE 2 is a longitudinal sectional view through the holder of FIGURE 1;

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FIGURE 3 is a perspective view of the detachable discharge nozzle shown in FIGURE 2;

FIGURE 4 is a view of a modified discharge nozzle similar to the one shown in FIGURE 3 but having a differently sized and shaped orifice;

FIGURE 5 is a perspective view of another modified nozzle having the form of a flattened tube with a slotted end orifice with an enlarged central portion;

FIGURE 6 is a view of the nozzle shown in FIGURE 5 in position to dispense fluent material across a wall crack;

FIGURE 7 is a fragmentary cross-sectional side view of the nozzle and wall shown in FIGURE 6;

FIGURE 8 is a perspective view of a modified V-sectioned nozzle;

FIGURE 9 is a view of the nozzle of FIGURE 8 positioned to apply fluent material around an outside corner formed by the junction of two walls;

FIGURE 10 is a fragmentary longitudinal section through the nozzle positioned as shown in FIGURE 9;

FIGURE 11 is a perspective view of a nozzle similar to that shown in FIGURES 8 to 10, inclusive, except that the V opens upwardly instead of downwardly;

FIGURE 12 is a view of the nozzle shown in FIGURE 11 positioned to apply fluent material to an interior corner at the junction of two walls;

FIGURE 13 is a fragmentary longitudinal sectional view through the inside nozzle positioned as shown in FIGURE 12; and

FIGURE 14 is a fragmentary sectional view illustrating a detachable closure fitted over the integral holder nozzle shown in FIGURE 1.

Referring again to the drawing, in FIGURES 1 and 2 there is illustrated a dispensing device designated generally 1 formed from thin rigid material such as sheet metal but preferably from molded plastic for use with collapsible containers. Its main body 2 is crescent-shaped and of a diameter conveniently grasped in the hand of a user. Viewed from one aspect, main body 2 might be described as tubular with the upper half cut away along a combination straight and curved contour line indicated at 3. One end of the main body 2 is formed with an integral inclined, generally conical nozzle 4 truncated at its pointed forward end to form a discharge port 7. This port is generally circular for convenience as its shape is not material in relation to the detachable dispensing nozzles to be placed over nozzle 4 subsequently to be described.

The dispensing device 1 includes integral retaining means positioned to project into the side of a collapsible container when the latter is expanded by pressure applied to its contents, the resulting indentation being effective to hold the container against rearward movement from the nozzle 4. One preferred form of retaining means comprises an integral hood 8 extending rearwardly and downwardly from the front wall of nozzle 4, as shown in FIGURE 2, with an outer lip 9 spaced sufficiently close to the walls of the holder as to indent the wall of the container. Spaced ribs 10 are formed on the underside of the exterior of the body 2 for gripping purposes.

The collapsible tubular container, designated generally 12 and seated in the holder, is preferably formed from thin pliable material of which many are now available, a vinyl plastic having been found particularly suitable. This material is preferably formed into an endless, seamless tube of a diameter approximately that of the main body of the dispensing holder. The end of the container 12 may be closed by seal-forming transverse heat fused seams 14 extended at a sharp angle to the longitudinal axis of the tube, the inclination corresponding generally with the inclination of the end wall of the integral nozzle 4. At the extreme ends of the body of the container the corners 15 incline naturally downwardly away from

the main body of the container to conform with the contour of nozzle 4.

Although the collapsible container may be filled with any fluent material which it is desired to dispense, one material contemplated for use with the present invention comprises a crack filling compound prepared from gypsum powder and an oil based vehicle which dries quickly upon exposure to the open air. This material, or any other suitable fluent material, may be dispensed from the sealed container through the holder 1 by severing a tip 13 from the pointed ends 15 of the container projecting through the port 7 of the dispensing holder 10. It is then evident that as pressure is applied to the collapsible container the contents will expand its end against the interior of nozzle 4, the hood 8 locking the container in place and in tight sealing engagement while the tube contents are expelled outwardly through the dispensing nozzle 20.

In FIGURES 2 and 3, there is illustrated a preferred form of a detachable cone-shaped dispensing nozzle 17 terminating in a narrow slot-shaped opening 20. Extending upwardly from the nozzle is a retaining arm 21 which lies flat against the exterior of integral nozzle 4. At the upper end of arm 21 is an integral spring clip 22 extended substantially at right angles and, as shown in FIGURE 2, overlying the upper surface of hood 8 so as to hold the nozzle 17 securely on the nozzle 4. The relationship is such that the dispensing nozzle 17 can be telescoped over integral nozzle 4, the arm 21 sliding upwardly along the front exterior face of the latter in an outwardly flexed condition until the clip reaches the upper end of nozzle 4 at which time it slips over the hood 8 and into locking relationship, the arm 21 then lying flat against the nozzle 4. The forward end of nozzle 17 forms an extension of nozzle 4, as shown clearly in FIGURE 2, the narrow slot-shaped opening 20 being designed to dispense a thin ribbon of material as the collapsible container is squeezed.

In FIGURE 4 as shown a second embodiment comprising a nozzle 25 substantially identical to that shown in FIGURE 3 except that it has a larger discharge orifice 26 of elliptical shape suitable for dispensing a larger ribbon of fluent material suitable to fill a wider or deeper crack.

In FIGURE 5 the nozzle 27 is similar to that disclosed in FIGURE 2 but is provided with triangularly-shaped flattened discharge portion 28 terminating in a continuous elongated slot or orifice 30 and formed centrally on its underside with a convex groove 31 which provides a greater flow of material at the center of than across the remainder of slot 30. In FIGURE 6 and 7 the nozzle 27 is shown positioned to spread fluent material 32 to provide a smooth finish surface on a flat wall formed by two planar members 33 and 34 and to fill the crack 35 between them. As shown in FIGURE 6, the trough or groove 31 is in alignment with crack 35 so that the additional flow of material at the center of the ribbon is available to the crack as required. As best seen in FIGURE 7, the nozzle is in position to be lowered on the wall surface and for this purpose it is desirable that the lower edge of the orifice 30 be positioned forwardly of the upper surface so that the latter will be spaced from the wall to provide a channel between itself and the wall for the layer of fluent material.

In FIGURES 8, 9 and 10 a detachable nozzle 38 is illustrated which is adapted to apply fluent material to an outside corner 39 formed at the junction of the two wall surfaces 40 and 41. Here the nozzle is provided with a V-sectioned discharge portion including two angularly related flat tube members 44 and 45. At the outer end of the portions 44 and 45 is a continuous dispensing slot 49 which, as best seen in FIGURE 10, has its lower edge 50 extended outwardly beyond its upper edge 51 in the same general relationship as the edges of the discharge outlet in the embodiment of FIGURES 5, 6 and 7.

There is illustrated in FIGURES 11, 12 and 13 a detachable nozzle 55 for applying fluent material to an inside corner 56 formed by the junction of the walls 57 and 58. Here the nozzle 55 is provided with a V-sectioned discharge tube having an upwardly facing V and including sides 62 and 63 ending a continuous V-shaped slot or orifice 64. In this embodiment the lower edge 67 of the slot 64 extends forwardly of the upper edge 68 and, as shown in FIGURE 13, in the application of a layer 69 on the inside corner 56, the spacing of the upper edge 68 from the wall determines the thickness of the layer.

Following use of the dispensing unit and during storage it is desirable to seal and protect from the ambient air the contents of the collapsible container which are exposed at the open corner in the integral nozzle 4 of the holder. To provide this protection, as illustrated in FIGURE 14, a detachable conical-shaped closure 70 is provided which is adapted to be secured on the nozzle 4 in the same manner as a detachable dispensing nozzle and which includes a holding arm 71 similar in all respects to the arm 21 of the embodiment of the dispensing nozzle 17 shown in FIGURES 2 and 3. As is seen in FIGURE 14 the closure 70 entirely closes and seals the nozzle opening 7 and prevents leakage and possible hardening and setting of the fluent material.

In the use of the present invention the dispensing and spreading of the material is conveniently performed by holding the device in the hand and applying slight pressure to the exposed upper portion of the collapsible container necessary to expel the contents at a desired rate from the orifice of the dispensing nozzle as it is maneuvered over the area or crevice to be filled or covered with fluent material. If the controlling pressure is applied from the rear of the container forwardly toward the nozzle, as it conveniently may be, the forward portion of the dispensing device remains fully inflated for more convenient handling. The pressure applied to the contents acts to expand the forward end of the container walls outwardly against the hood 8 with the result that the forward end of the container remains fully inflated against the walls of the integral nozzle 4. For this reason the contents cannot creep back between the container and the nozzle 4. Nor is it possible for the container to become displaced from the dispensing holder.

The particular dispensing nozzle selected for attachment to the integral holder nozzle depends upon the work to be performed and the contour of the area to be filled or covered. The dispensing nozzles are all attached and removed in the same manner and are all preferably replaced when the unit is not in use by the closure unit 70.

While the particular crack filling dispenser herein shown and disclosed in detail is fully capable of attaining the objects and providing the advantages hereinbefore stated, it is to be understood that it is merely illustrative of the presently preferred embodiments of the invention and that no limitations are intended to the details of construction or design herein shown other than as defined in the appended claims.

I claim:

1. A hand-held dispensing device for use in dispensing and distributing the fluent contents of an elongated collapsible container into cracks, crevices and the like as the device is passed along the gap to be filled, said device comprising an elongated holder generally crescent-shaped in cross-section designed to be grasped within the hand of the user along with a capless collapsible tubular container supported and nested compactly therein so long as the device is in use to dispense and distribute the contents of said collapsible container, said holder having a converging integral nozzle at one end the axis of which extends outwardly from the curved underside of the holder at an angle to the longitudinal axis thereof and which is adapted to enclose and sup-

port one end of said collapsible container with the discharge opening of said container in registry with the discharge opening of said integral nozzle, means for retaining said tubular container assembled to said holder, a threadless detachable nozzle fitted over said integral nozzle having smooth wall surfaces fitting against smooth complementary walls of said holder nozzle, said detachable nozzle having a discharge end with a shaped orifice adapted to direct fluent material onto a receiving surface, and means for holding said detachable nozzle assembled to said holder.

2. The invention as defined in claim 1 in which said last mentioned means includes a spring clip engageable with detent means on said holder and cooperating therewith to hold said detachable nozzle firmly in place over the discharge end of said holder nozzle.

3. A hand-held dispensing device for use in dispensing and distributing the fluent contents of an elongated collapsible container into cracks, crevices and the like as the device is passed along the gap to be filled, said device comprising an elongated holder generally crescent-shaped in cross-section and designed to be grasped within the hand for the application of pressure against a capless collapsible tubular container nested lengthwise within said holder, said holder having a converging integral nozzle at one end the axis of which projects away from the open side of said holder at an angle to the longitudinal axis thereof and which is formed to enclose and retain the end of a collapsible container having a discharge passage lying at an angle to the axis of axes of the container with its outlet opening in registry with the discharge opening of said integral nozzle, a detachable nozzle fitted over said integral nozzle and having smooth wall surfaces fitting against smooth complementary walls of holder nozzle, and means to secure said detachable nozzle onto said integral nozzle, said detachable nozzle having an end extending outwardly of said integral nozzle and having a discharge opening therein.

4. The invention according to claim 3 characterized in that said holder includes means integral therewith and positioned to engage the dispensing end of said container to retain the discharge end thereof against axial displacement from said integral nozzle as dispensing pressure is applied to said container.

5. The invention according to claim 3 characterized in that said integral nozzle includes retainer means engageable with the adjacent end portion of the container and cooperating therewith to hold the portion forming the container discharge opening pressed against the interior of the integral nozzle when pressure is applied to the walls of the container.

6. The invention according to claim 3 in which said discharge opening in said detachable nozzle is slot-shaped with the end edges thereof lying in a plane to lie flush against a wall surface as said holder is held at an acute angle to the wall.

7. The invention according to claim 1 in which said discharge opening in said detachable nozzle is elliptical.

8. The invention according to claim 1 in which said detachable nozzle is formed in the shape of a flattened tube, and has an elongated slot for said discharge opening, said slot having an enlarged central grooved portion and the end edges of said slot lying in a plane underlying said holder and intersecting said nozzle axis at an acute angle.

9. The invention according to claim 1 in which said detachable nozzle has a slot-shaped discharge opening having downwardly directed diverging portions adapted to apply said fluent material to the exterior of an outside corner formed by two walls.

10. The invention according to claim 1 in which said detachable nozzle has a slot-shaped discharge opening having a central low point and portions of said slot-shaped opening extending divergently upwardly therefrom for applying said plastic material to the surface of an inside corner formed by two walls.

11. A hand-held dispensing device for use in dispensing and distributing the fluent contents of an elongated collapsible container into cracks, crevices, and the like as the outlet of the device is held pressed thereagainst and advanced therealong, said device comprising an elongated hollow holder generally crescent-shaped in cross-section and designed to be grasped within the hand for the application of pressure against a collapsible tubular container nested lengthwise within said holder, said holder having a converging integral nozzle at one end the axis of which coincides with the outlet nozzle of said container and lies at an angle to the axis of said holder and which includes retainer means engageable with the end of a collapsible container and effective to hold the discharge opening thereof pressed in registry with the similarly shaped walls adjacent the discharge opening of said integral nozzle, and a threadless detachable closure having one end fitted over said integral nozzle and having wall surfaces complementary thereto, said closure having a spring clip at its other end removably securing said closure to said holder.

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