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(54) **Dispenser with interchangeable nozzle**

(57) A dispenser (10) suitable for dispensing sealant (S), comprises a body (12) in which sealant (S) is located to be dispensed, dispensing means (14) operable to urge sealant (S) through an outlet (16), the outlet (16) comprising a unitary end cap (18) having thread means

(20) for removable location thereof on the body (12) and further thread means (22) for removable attachment of a dispensing nozzle (24) to the end cap (18), the further thread means (22) being arranged to enable the selective removal of the nozzle (24) with the end cap (18) in location on the body (12).

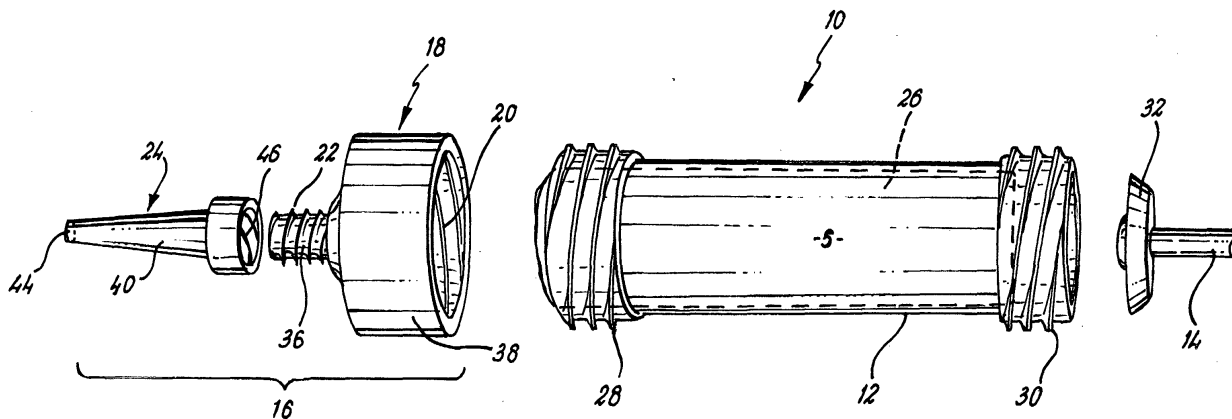


FIG. 1

Description

[0001] The present invention relates to improvements in or relating to dispensers in particular, but not exclusively, sealant dispensers.

[0002] Known designs of sealant dispenser comprise a barrel to hold sealant to be dispensed, a trigger actuated dispensing mechanism operable to urge sealant out of one end of the barrel through an outlet defined in part by an end cap, and a nozzle on the end cap through which sealant is dispensed. The size of the opening of the nozzle through which sealant is dispensed is a factor in determining the size of the bead of sealant dispensable by the dispenser.

[0003] For this reason, it is often desirable to interchange nozzles on a dispenser to facilitate variation in the dispensing of sealant. However, known designs of end cap and nozzle arrangement require the end cap to be removed from the barrel to enable replacement of the nozzle. This is a messy and inconvenient arrangement as removal of the end cap exposes the sealant in the barrel and within the end cap.

[0004] According to the present invention there is provided a dispenser suitable for dispensing sealant, the dispenser comprising a body in which material to be dispensed is located, dispensing means operable to urge material through an outlet in the body to be dispensed, the outlet comprising a unitary end cap comprising means for removable location thereof on the body and further means for removable attachment of a dispensing nozzle to the end cap, the further means being arranged to enable selective removal of a nozzle with the end cap in location on the body.

[0005] Preferably the end cap means comprises thread means engageable on corresponding thread means of the body. The end cap thread means may comprise an internal or female thread to receive corresponding thread means of the body.

[0006] The end cap further means preferably also comprises thread means, which thread means is desirably externally located on a portion of the end cap. The further means is preferably arranged to enable removable attachment of known designs of nozzles for sealant dispensers.

[0007] Preferably the end cap comprises puncture means operable to puncture a cartridge of sealant located in the body, for dispensing. The puncture means may be operable to puncture flexible cartridge material, such as a plastics or foil film or sheet containing sealant. The puncture means may comprise one or more projections which may be sharp or otherwise shaped to puncture a sealant cartridge. Preferably the puncture means is arranged to puncture the sealant cartridge as the end cap is located over the end of a body charged with a sealant cartridge. The puncture means may extend into the end cap means.

[0008] Further according to the present invention there is provided an end cap for location on a body of a

dispenser suitable for dispensing material, the end cap being unitary and comprising means for removable location thereof on a body of a dispenser and further means for removable attachment of a dispensing nozzle to the end cap, the further means being arranged to enable selective removal of a nozzle with the end cap in location on a body.

[0009] Preferably the end cap is as defined in any of the preceding six paragraphs.

[0010] An embodiment of the present invention will now be described by way of example only with reference to the accompanying drawings in which:-

Fig. 1 is an exploded view of a sealant dispenser according to the present invention;

Fig. 2 is an enlarged view of an end cap according to the present invention; and

Fig. 3 is a view of the end cap of Fig. 2 in the direction of arrow III.

[0011] Referring to the drawings there is provided a dispenser 10 suitable for dispensing sealant S, the dispenser 10 comprising a body 12 in which sealant is located to be dispensed, dispensing means shown partially at 14 operable to urge sealant through an outlet 16, the outlet 16 comprising a unitary end cap 18 comprising thread means 20 for removable location of the end cap 18 on the body 12 and further thread means 22 for removable attachment of a dispensing nozzle 24 to the end cap 18, the further thread means 22 being arranged to enable the selective removal of the nozzle 24 with the end cap 18 in location on the body 12.

[0012] In more detail, the dispenser 10 comprises a body 12 of generally cylindrical configuration and arranged to receive a flexible cartridge or bag 26 of sealant S. The body 12 has a first external threaded section 28 at one end thereof and a second, similar external threaded section 30 at the other end. The dispensing means 14 comprises a trigger arrangement operable to move the plunger 32 gradually down the length of the body 12 urging the cartridge 26 and the sealant therein toward the outlet 16 in use. The arrangement and mechanism of the dispensing means 14 is conventional and will not be described further in this specification.

[0013] An important aspect of this invention is the end cap 18. Referring particularly to Figs. 2 and 3, the end cap 18 comprises a single piece, unitary body which defines an internal thread 20 which is threadedly engageable over the external thread section 28 on the body 12. The end cap 18 defines a passage 34 therethrough which passage 34 extends through a projection 36 of narrower diameter than the diameter of the portion 38 of the end cap 18 in which the internal thread means 20 is located.

[0014] The further thread means 22 extends around the outside of the projection 36 to receive a generally

conventional design of nozzle 24 for sealant dispensers. The nozzle 24 comprises a generally conical body 40 which defines a generally conical passage 42 there-through towards a dispensing opening 44. At the other end of the passage 42 is an internally threaded section 46 which is removably threadedly engageable on the further threaded means 22 of the end cap 18, as will be described.

[0015] Within the portion 38 is located a plurality of pointed projections 48 which extend generally away from the projection 36 into the relatively large cross-sectional area of the passage 34 within the portion 38. These projections 48 are operable to puncture a sealant cartridge 26 as the end cap 18 is threadedly located over the end 28 of the body 12 when charged with a cartridge of sealant.

[0016] In use, the dispenser 10 can be used for the dispensing of sealant, and in particular beads of sealant along a gap or a joint to be sealed thereby. It will however be appreciated that the dispenser 10 according to the present invention could be used to dispense other liquid or semi-liquid materials.

[0017] A cartridge of sealant 26 is located within the body 12 to a position generally as shown in Fig. 1. The dispensing means 14 is threadedly attached to the end 30 and the end cap 18 is threadedly attached to the ends 28.

[0018] As the end cap 18 is threadedly attached, the pointed projections 48 cut through the casing of the cartridge 26 to release sealant into the end cap 18. The opening of the sealant cartridge 26 in this way avoids sealant contaminating the outside of the dispenser 10.

[0019] A nozzle 24 is chosen and threadedly attached over the projection 36 to give the desired opening 44 for the intended use of the sealant S to be dispensed from the dispenser 10.

[0020] The dispenser 10 is then used in conventional manner, with an operative holding the opening 44 of the nozzle at the area where sealant is to be dispensed, and then actuating the dispensing means 14 to urge the plunger 32 along the body 12, to push sealant to be dispensed out through the end cap 18 and nozzle 24 onto the desired area.

[0021] Often before all the sealant S is dispensed from a dispenser, it would be desirable to alter the diameter of the opening 44 in the nozzle 24. This may require replacement of the existing nozzle 24 with an alternative nozzle.

[0022] It is a particular advantage of the present invention that the nozzles can be interchanged without the need to remove the end cap 18 from on the body 12, and thereby obviates the problem of prior art of exposure of the sealant cartridge which often results in a messy release of sealant from the dispenser.

[0023] The projection 36 and thread means 22 are suitable to receive known and generally conventional internal thread sections 46 of nozzles of known dispensing apparatus.

[0024] It is a further advantage of the present invention that the end cap 18 is of unitary construction thereby simplifying its manufacturing process and improving its robustness and sturdiness for use.

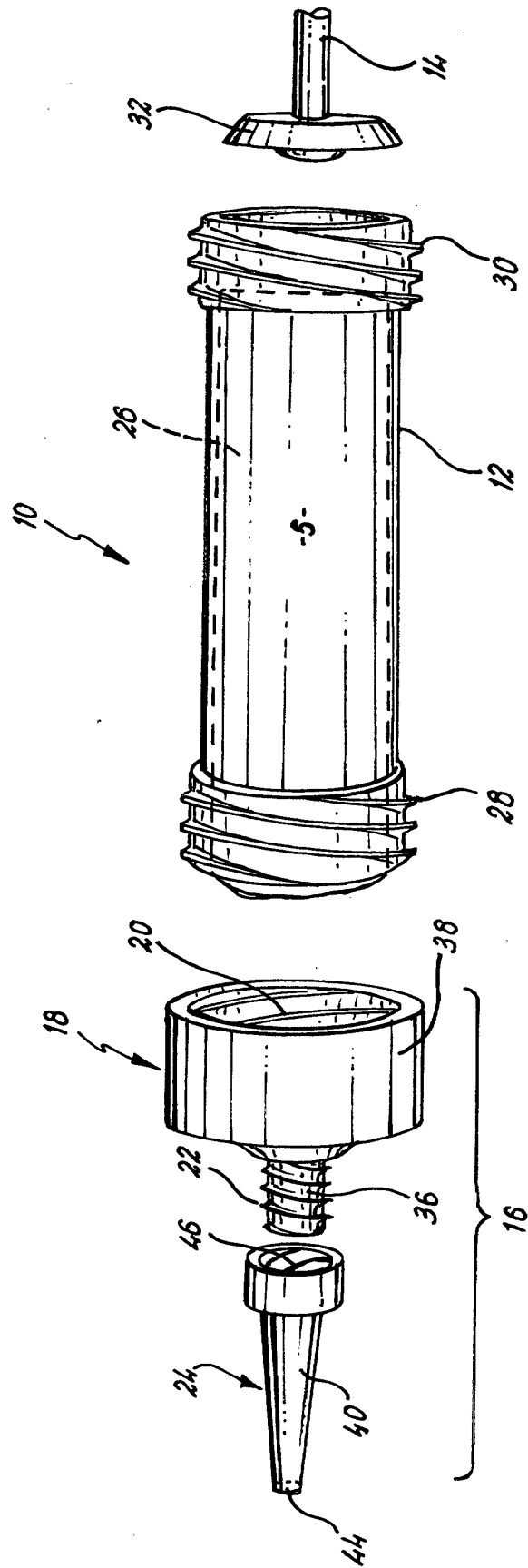
[0025] Various modifications may be made without departing from the spirit or scope of the present invention. The end cap may be made of any suitable material, such as plastics and/or metal. However metal is the preferred material as this avoids the need for washers or the like to seal the attachment of a nozzle on the end cap, as the metal self-taps itself and seals into the plastic nozzle.

[0026] Whilst endeavouring in the foregoing specification to draw attention to those features of the invention believed to be or particular importance it should be understood that the Applicant claims protection in respect of any patentable feature or combination of features hereinbefore referred to and/or shown in the drawings whether or not particular emphasis has been placed thereon.

Claims

1. A dispenser suitable for dispensing sealant, the dispenser comprising a body in which material to be dispensed is located, dispensing means operable to urge material through an outlet in the body to be dispensed **characterised in that**, the outlet comprises a unitary end cap comprising means for removable location thereof on the body and further means for removable attachment of a dispensing nozzle to the end cap, the further means being arranged to enable selective removal of a nozzle with the end cap in location on the body.
2. A dispenser as claimed in claim 1, **characterised in that** the end cap means comprises thread means engageable on corresponding thread means of the body.
3. A dispenser as claimed in claim 2, **characterised in that** the end cap thread means comprises an internal or female thread to receive corresponding thread means of the body.
4. A dispenser as claimed in any preceding claim, **characterised in that** the end cap further means comprises thread means.
5. A dispenser as claimed in claim 4, **characterised in that** the thread means is externally located on a portion of the end cap.
6. A dispenser as claimed in any preceding claim, **characterised in that** further means is arranged to enable removable attachment of known designs of nozzles for sealant dispensers.

7. A dispenser as claimed in any preceding claim, **characterised in that** the end cap comprises puncture means operable to puncture a cartridge of sealant located in the body, for dispensing. 5
8. A dispenser as claimed in claim 7, **characterised in that** the puncture means is operable to puncture flexible cartridge material, such as a plastics or foil film or sheet containing sealant. 10
9. A dispenser as claimed in claim 7 or claim 8, **characterised in that** the puncture means comprises one or more projections which are sharp or otherwise shaped to puncture a sealant cartridge. 15
10. A dispenser as claimed in any of claims 7 to 9, **characterised in that** the puncture means is arranged to puncture the sealant cartridge as the end cap is located over the end of a body charged with a sealant cartridge. 20
11. A dispenser as claimed in any of claims 7 to 10, **characterised in that** the puncture means extends into the end cap means. 25
12. An end cap for location on a body of a dispenser suitable for dispensing material **characterised in that**, the end cap being unitary and comprising means for removable location thereof on a body of a dispenser and further means for removable attachment of a dispensing nozzle to the end cap, the further means being arranged to enable selective removal of a nozzle with the end cap in location on a body. 30
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13. An end cap as claimed in claim 12 and substantially as hereinbefore defined in any of claims 1 to 11. 40
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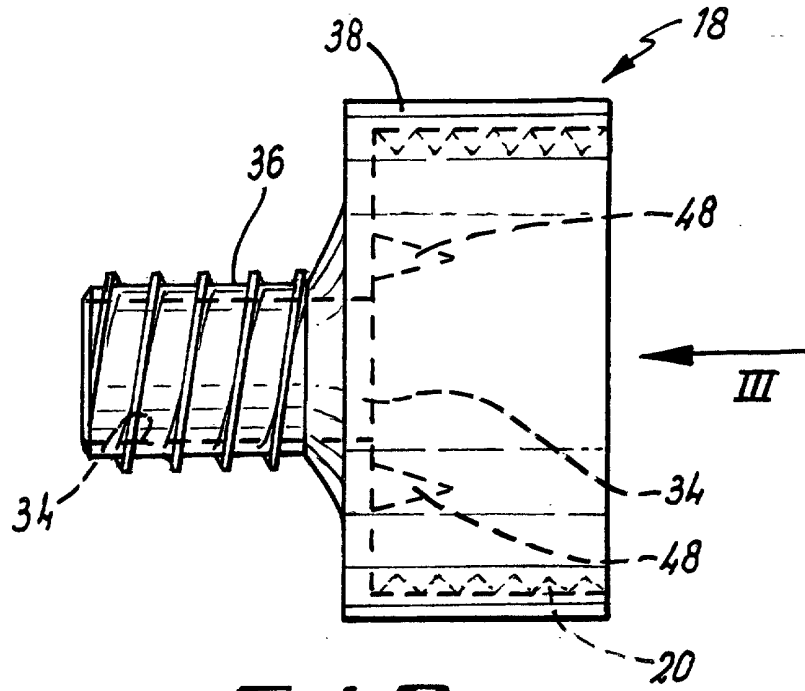


FIG. 2

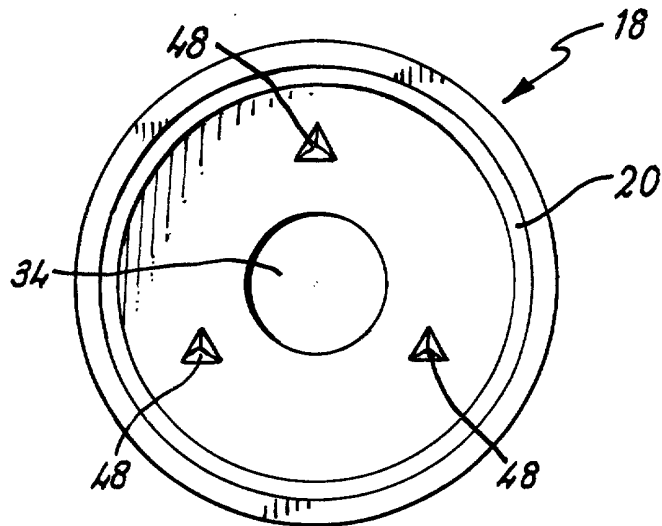


FIG. 3



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	DE 89 01 554 U (RITTER FRANZ PETER) 8 June 1989 (1989-06-08) * page 4, line 7 - line 9 * * page 6, line 4 - line 21; figures 1,3,5 * -----	1-13	B65D25/48 B65D83/76 B05C17/005
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			B05C B65D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 12 July 2002	Examiner Sundell, O
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

EPO FORM 1503 03/82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 02 25 0910

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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12-07-2002

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 8901554 U	08-06-1989	DE 8901554 U1	08-06-1989

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82