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(54) Bracket

(57) A quick release bracket for a dispensing attachment for a viscous material dispenser is disclosed, in particular for a spreader tube for application of adhesives to flooring. The bracket comprises a cross member and side members extending from the cross member to define a space for accepting an elongate dispensing attachment. A retention arrangement is disposed between the side members to apply a retention force towards the cross member to a first aspect of a dispensing attachment held in the space with each end of the dispensing attachment facing a respective side member. Also disclosed is a corresponding dispenser and a dispensing attachment for use with the same.

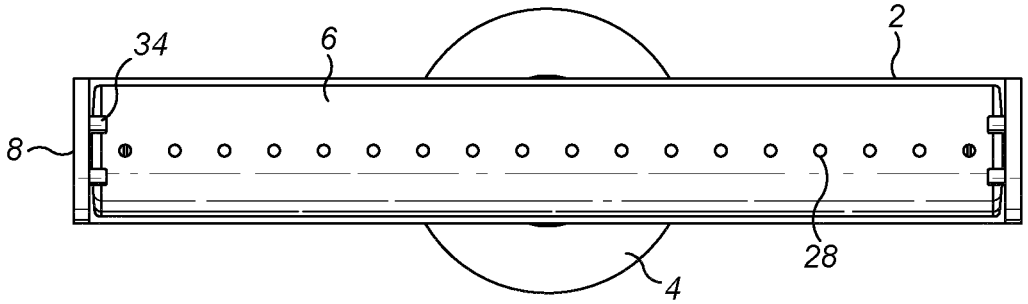

FIG. 3

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Description

[0001] The present disclosure relates to a bracket for holding an elongate dispensing attachment relative to a dispenser. In particular, although not exclusively, the present disclosure relates to a bracket for holding a spreader tube for spreading adhesive dispensed from a dispenser. More particularly, the dispenser is a flooring adhesive dispenser.

[0002] Known flooring adhesive dispensers have been described in, for example, US-A-2011/0248053, incorporated herein by reference. Such dispensers typically comprise a drive mechanism attached to one end of a barrel for accepting the adhesive in a suitable packaging. At an opposed end of the barrel, a nozzle is provided, typically as part of a retaining cap for retaining the adhesive packaging inside the barrel. In a typical arrangement, the packaging is a foil pack, often referred to as a "sachet". Pressure is applied to the packaging at one end by a piston driven by the driving mechanism. The packaging is cut open at the other end to dispense adhesive through the nozzle. A spreader tube for spreading the dispensed adhesive, typically through a plurality of holes spaced along the spreader tube, is connected to the nozzle by a bracket. A known spreader tube bracket is illustrated in Figure 1 and comprises a cross member 2 through which a nozzle 4 is disposed to sealingly engage a spreader tube 6 held between side members 8. The side members extend forward of the spreader tube to space the spreader tube 6 away from a floor surface to which adhesive is to be applied. The spreader tube 6 is secured to the cross member 2 by attachment screws 10.

[0003] In known flooring adhesive dispensers of the kind described above, the need for attachment screws 10 to maintain the spreader tube 6 in place has several disadvantages, including the need for a screwdriver to be to hand when the spreader tube 6 needs to be changed, because either a different spreader tube is required or the spreader tube needs to be removed for cleaning and/or replacement. Further, disengagement of the spreader tube 6 by unscrewing the attachment screws 10 is time consuming and inconvenient, in particular considering that the attachment screws 10 are located at the end of a relatively heavy tool when the flooring adhesive dispenser is in use.

[0004] In one aspect, the present disclosure provides a bracket for holding an elongate dispensing attachment relative to a dispenser for viscous material to enable the viscous material to be dispensed from the dispenser through the dispensing attachment. The bracket comprises a cross member and side members extending from the cross member to define a space for accepting an elongate dispensing attachment. A retention arrangement is disposed between the side members to apply a retention force towards the cross member to a first aspect of a dispensing attachment held in the space with each end of the dispensing attachment facing a respective side member.

[0005] Thus, a quick release and attachment arrangement is provided which allows the dispensing attachment, e.g. spreader tube, to be easily and conveniently removed and attached, without the need for additional tools. In particular in embodiments in which attachment and removal involves a rotational movement about the nozzle, a mechanically simple and robust quick release and attachment arrangement is provided.

[0006] In some embodiments, the bracket comprises an engaging arrangement to engage a second aspect, opposed to the first aspect, of the dispensing attachment, when the dispensing attachment is disposed in the space. The engaging arrangement is arranged to apply a counterforce to the retention force to the second aspect of the dispensing attachment. The engaging arrangement may be configured to space the dispensing attachment away from the cross member, thereby allowing the dispensing attachment to flex towards the cross member as the dispensing attachment is moved into and out of engagement with the retention arrangement. Alternatively, the bracket may be configured such that the counterforce is provided to the dispensing attachment by the cross member, the dispensing attachment flexing in the region of the retention arrangement during engagement and disengagement.

[0007] In some embodiments, the engaging arrangement maybe configured as a nozzle through which viscous material can flow from the dispenser to the dispensing attachment, which is sealingly engaged with the nozzle at the second aspect, when the dispensing attachment is disposed in the space. The nozzle may comprise a tapered outer surface to engage an opening in the second aspect of the dispensing attachment. In some embodiments, the nozzle may be configured to enable rotation of the dispensing attachment about the nozzle to disengage the dispensing attachment from the retention arrangement.

[0008] The nozzle may, in some embodiments, comprise a first portion extending in a first direction into the space and a second portion extending in a second direction, opposed to the first direction, from the cross member to close a viscous material containing compartment of a dispenser when the bracket is mounted on the dispenser. The bracket may comprise a retaining cap disposed around the second portion to secure the bracket to the dispenser.

[0009] In some, alternative, embodiments, the nozzle is not part of the bracket but is an integral part of the packaging containing the viscous material (or otherwise secured to the packaging and/or dispenser). In these embodiments, the cross member is configured to allow the nozzle access to the dispensing attachment when the bracket is mounted on the dispenser, for example providing an aperture in the cross members through which the nozzle can extend. The bracket may be secured to the cross member by a retaining cap similar to that described above or by some other securing arrangement.

[0010] In some embodiments, the respective one or

more retention members each comprise two pins extending from the respective side member to apply a force at mutually spaced locations to a respective end of the dispensing attachment.

[0011] Alternatively, the first and second one or more retention members may be configured as a respective single retention member with a profile to apply a force at mutually spaced locations at the respective ends of the dispensing attachment. For example the single retention member may have a concave profile which may follow the contour of the first aspect of the dispensing attachment or otherwise provide mutually spaced contact points. Equally, the one or more first retention members and one or more second retention members may each comprise three or more pins disposed to apply a force to the respective ends of the dispensing attachment at mutually spaced locations. For example, three or more pins may be arranged so as to follow the contour of the first aspect of the dispensing arrangement.

[0012] In some embodiments, the retention arrangement extends from one of the side members to the other one of the side members. In these embodiments, the retention arrangement may comprise a single retention member which may be suitably shaped as described above in relation to the first and second one or more retention members, and/or a plurality of retention members disposed as described above in relation to the first and second one or more retention members. It will be understood that such retention members may be formed from a unitary piece of material or several component parts.

[0013] In some embodiments, the bracket is arranged to accept a dispensing attachment which comprises a tube of substantially annular profile, more particularly a spreader tube for flooring adhesive applications. Such a spreader tube is arranged to spread dispensed adhesive along its length and typically has a plurality of spaced apertures along the first aspect and an inlet aperture on the second aspect. In particular, the nozzle comprises a tapered outer surface to sealingly engage the inlet opening.

[0014] The profiles of the dispensing attachment and retention arrangement may be adapted so that a retaining force is applied which has a component towards the cross member and a component parallel to the cross member, to securely hold the dispensing attachment in place. For example, the dispensing attachment may be of an annular profile and the retention arrangement may be arranged to contact the outer surface of the attachment at spaced locations on either side of the point of furthest distance from the cross member on the outer surface of the attachment. Examples of such a retention arrangement are described above. Alternatively, the attachment may have a concavely shaped region for engaging a convexly shaped retention arrangement, e.g. a single pin or bar, optionally of a matching profile.

[0015] In a further aspect, there is provided a dispenser comprising a compartment for containing viscous materials and a dispensing mechanism for dispensing viscous material from the compartment. The dispenser comprises a bracket and/or dispensing attachment as described above.

[0016] In yet a further aspect, there is provided an elongate dispensing attachment adapted for use with a bracket or dispenser as described above, the dispensing attachment comprising a first aspect defining a plurality of holes for dispensing viscous material, the holes being spaced along a direction between ends of the dispensing attachment. A second aspect defines an inlet opening through which viscous material can flow into the dispensing attachment. Apart from the inlet opening, the second aspect has a continuous surface on either side of the inlet opening. In some embodiments, the dispensing attachment comprises radiused end portions to facilitate engagement and disengagement from the bracket by rotation.

[0017] The dispensing attachment may be cylindrical with an annular or other cross sectional profile or may be of varying width along a direction between the ends, depending upon application and design considerations.

[0018] A specific embodiment is now described by way of example for the purpose of illustration with reference to the accompanying drawings in which:

Figure 1 illustrates a known bracket for a spreader tube attachment;
Figure 2 illustrates an adhesive dispenser for flooring applications together with a quick release bracket and a spreader tube attached;
Figure 3 illustrates a front elevation of the quick release bracket with a spreader tube engaged;
Figure 4 illustrates a top elevation of the bracket and spreader tube of Figure 3; and
Figure 5 illustrates a cross section as indicated in Figure 4.

[0019] With reference to Figure 2, a dispenser 12 for viscous material, in particular for dispensing flooring adhesive, comprises a drive unit 14 housing an electric motor for driving a rack 16 to apply a dispensing pressure to a viscous material, in particular adhesive, container held in a barrel 18 secured to the drive unit 14. Advance and retreat of the rack 16 is controlled by trigger buttons 20 on a handle 22 of a drive unit 14.

[0020] A spreader tube 6 of annular cross-sectional profile is held relative to the barrel 18 by a bracket comprising a cross member 2 and side members 8. The spreader tube 6 is engaged with a nozzle 4 for receiving viscous material from the container inside the barrel 18. The cross member 2 is secured to the nozzle 4 by fixing screws 24 and the nozzle 4 is secured to the barrel 18 by a retaining cap 26, to dispose the cross member 2 across a longitudinal direction, e.g. a direction along the barrel 18, of the dispenser 12.

[0021] With reference to Figures 3 to 5, the spreader tube 6 defines a plurality of apertures 28 in a front aspect

of the spreader tube 6 and an inlet opening in a rear aspect of the spreader tube 6. In its installed configuration, the spreader tube 6 locates inside a space between the side members 8 such that a tapered surface of the inlet opening engages a tapered outer surface 30 at a front end of the nozzle 4 protruding into the space between the side members 8 through the cross member 2. The tapered outer surface 30 forms a seal with the inlet opening of the spreader tube 6 so that the viscous material can be dispensed through the nozzle 4 and out of the apertures 28 in the spreader tube 6. The tapered outer surface 30 of the nozzle 4 and the inlet opening of the spreader tube 6 both have a circular profile such as to enable rotation of the spreader tube 6 about an axis of rotation 32 through the nozzle 4.

[0022] A pair of pins 34 extend inwards from each side member 8 to engage the front aspect of the spreader tube 6. The pins 34 at each side member are mutually distanced and disposed forward of the tapered outer surface 30 at a distance such that the spreader tube 6 is held between the tapered outer surface 30 and the pins 34 with the pins 34 exerting a retention force on the front aspect of the spreader tube 6 to push the inlet opening of the spreader tube 6 onto the tapered outer surface 30. Consequently the tapered outer surface 30 provides a counter force to the retention force exerted by the pins 34. Each pair of pins 34 engages a corresponding end of the spreader tube at mutually spaced locations so that the spreader tube extends forward of the contact points with the pins 34 by a retention distance 36. At the rear aspect, the spreader tube 6 is held by the tapered surface 30 of the nozzle 4 at a distance from the cross member 2 to provide a flexing gap 38. Each end of the spreader tube 6 is closed by a stopper 40, which is radiused to provide a rotation clearance 42 between each stopper 40 and a respective inner surface of the side member 8.

[0023] In operation, with the spreader tube 6 held in the bracket, the spreader tube can be disengaged from the bracket by rotating the spreader tube 6 about the axis 32, which will cause the ends of the spreader tube 6 to travel away from one of the pairs of pins 34 and ride underneath the other one of the pair of pins 34 on each side of the bracket. Due to the curvature of the first aspect of the spreader tube 6, as the ends of the spreader tube ride underneath a respective pin 32, the spreader tube is able to flex towards the cross member into the flexing gap 38 while the rotation clearance 42 facilitates the ends of the spreader tube 6 travelling past the side members 8. Once the spreader tube 6 is clear of the pins 34, it can be lifted off the tapered outer surface 30 of the nozzle 4 forward through the gap between the pins 34. Engagement of the spreader tube involves the reverse process, with the spreader tube 6 being located on the tapered outer surface 30 of the nozzle 4 while being angled relative to the cross member 2 to clear the pins 32, followed by rotation to secure the spreader tube 6.

[0024] The above description of operation of the specific embodiment assumes that the spreader tube 6 is more readily resiliently deformable than the cross member 2 and side members 8. Depending on the specific choice of materials, the reverse may be true, in which case the operation is similar as described above but with the difference that it is the cross member 2 and/or side members 8 which flex as the spreader tube 6 is rotated in and out of engagement with the bracket. Of course, depending on the choice of material, a finite amount of flexing might occur in both the bracket and spreader tube 6 during engagement and disengagement.

[0025] The cross member 2 and side members 8 are manufactured from a flat steel bar, bending each end to create the side members 8. The pins 32 (commercially available dowel pins) are assembled by press fitting. The spreader tube 6 is made from polyvinyl chloride (PVC) or acrylonitrile butadiene styrene (ABS) tube cut to length and provided with stoppers at each end. The nozzle 4 is machined or injection moulded from high density polyethylene (HDPE) or polyacetal formaldehyde (Acetal). Naturally, many variations of materials and manufacturing processes employed are possible and readily apparent to the person skilled in the art.

[0026] Likewise, many modifications and juxtapositions of the features of the specific embodiment described above are possible and readily apparent to the person skilled in the art, including for example the various embodiments described above. Equally, applications other than flooring adhesive dispensing are possible and the described embodiments can be used with any suitable elongate attachment to be held in the bracket with its ends adjacent the side members 8. Applications are therefore not limited to dispensers for dispensing adhesive but the bracket is also suitable for dispensers for any other suitable viscous material.

[0027] It will be understood that the above description or specific embodiments of the invention is made by way of example only and is not intended to limit the scope of the invention.

Claims

1. A bracket for holding an elongate dispensing attachment relative to a dispenser for viscous material to enable the viscous material to be dispensed from the dispenser through the dispensing attachment, the bracket comprising:

   a cross member;
   side members extending from the cross member to define a space for accepting an elongate dispensing attachment; and
   a retention arrangement disposed between the side members to apply a retention force towards the cross member to a first aspect of the dispensing attachment when the dispensing attachment is disposed in the space with each end of the dispensing attachment facing a respective

side member.

2. A bracket as claimed in claim 1 comprising an engaging arrangement to engage a second aspect, opposed to the first aspect, of the dispensing attachment when the dispensing attachment is disposed in the space and apply to the second aspect a counter force to the retention force.

3. A bracket as claimed in claim 1 comprising a nozzle through which viscous material can flow from a dispenser to the dispensing attachment when the dispensing attachment is disposed in the space and held relative to the dispenser, the nozzle being arranged to sealingly engage a second aspect, opposed to the first aspect, of the dispensing attachment when the dispensing attachment is disposed in the space and apply to the second aspect a counter force to the retention force.

4. A bracket as claimed in claim 3 in which the nozzle comprises a tapered outer surface to engage an opening in the second aspect of the dispensing attachment when the dispensing attachment is disposed in the space.

5. A bracket as claimed in claim 3 or 4 in which the nozzle is arranged to enable rotation about the nozzle of the dispensing attachment to disengage the dispensing attachment from the retention arrangement when the dispensing attachment is disposed in the space.

6. A bracket as claimed in any one of claims 3 to 5, the nozzle comprising a first portion extending in a first direction into the space and a second portion extending in a second direction, opposed to the first direction, from the cross member towards a viscous material containing compartment of the dispenser when the bracket is mounted on the dispenser.

7. A bracket as claimed in claim 6 comprising a retaining cap disposed around the second portion to secure the bracket to the dispenser when the bracket is mounted on the dispenser.

8. A bracket as claimed in any preceding claim, the retention arrangement comprising one or more first retention members extending from one of the side members towards the other one of the side members and one or more second retention members extending from the other one of the side members towards one of the side members.

9. A bracket as claimed in claim 8, the first and second one or more retention members comprising two respective pins extending from the respective side member to apply a force at mutually spaced locations to a respective end of the dispensing attachment when the dispensing attachment is disposed in the space with each end of the dispensing attachment facing a respective side member.

10. A bracket as claimed in any preceding claim, for holding a dispensing attachment comprising a tube of substantially annular profile.

11. A dispenser comprising a compartment for containing viscous material and a dispensing mechanism for dispensing viscous material from the compartment, the dispenser further comprising a bracket as claimed in any preceding claim to enable viscous material to be dispensed from the compartment through a dispensing attachment when the dispensing attachment is held by the bracket.

12. A dispenser as claimed in claim 11, the viscous material being an adhesive and the dispenser being a flooring adhesive dispenser.

13. An elongate dispensing attachment adapted for use with a bracket as claimed in any one of claims 1 to 10 or a dispenser as claimed in claim 11 or 12, the dispensing attachment comprising a first aspect defining a plurality of holes for dispensing viscous material spaced along a direction between ends of the dispensing attachment and a second aspect defining an inlet opening through which viscous material can flow into the dispensing attachment, wherein the second aspect has a continuous surface on either side of the inlet opening.

14. A bracket as claimed in any one of claims 3 to 7 or claims 8 to 10 when dependent on claim 3, or a dispenser as claimed in claim 11 when dependent on claim 3, wherein an elongate dispensing attachment is disposed in the space, the dispensing attachment comprising a first aspect defining a plurality of holes for dispensing viscous material spaced along a direction between ends of the dispensing attachment and a second aspect defining an inlet opening through which viscous material can flow into the dispensing attachment, wherein a clearance between each end and a respective side member enables the dispensing attachment to be disengaged from the retaining arrangement by rotation about the nozzle.

15. A bracket or dispenser as claimed in claim 14, the elongate dispensing attachment having an annular profile, preferably including radiussed end portions to facilitate rotation relative to the bracket.

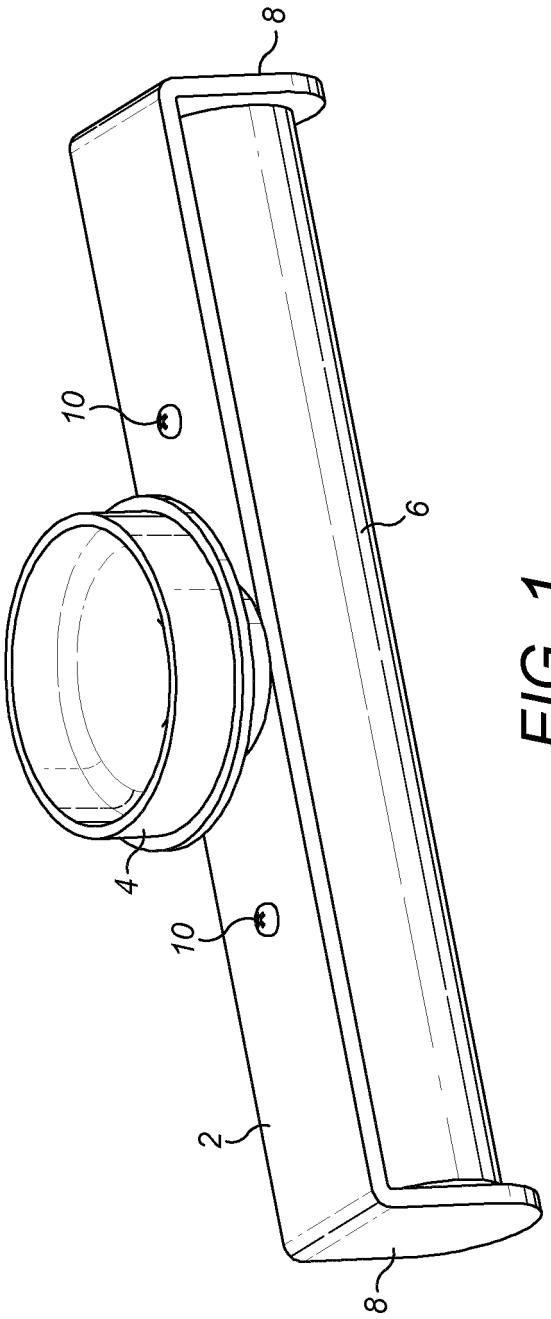

FIG. 1

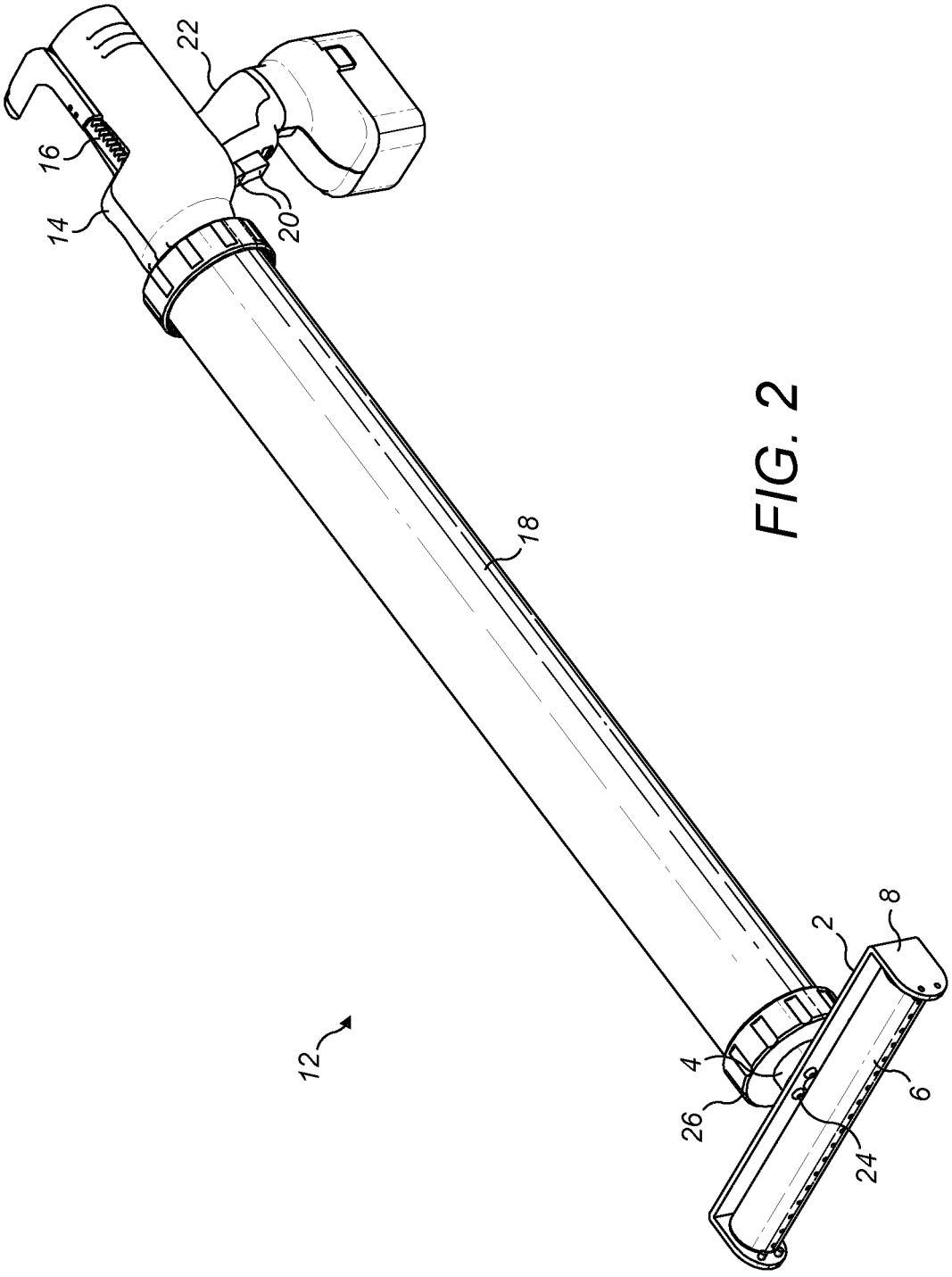

FIG. 2

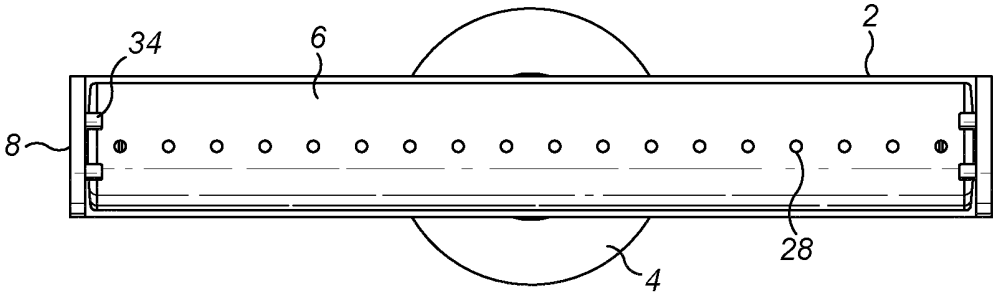

FIG. 3

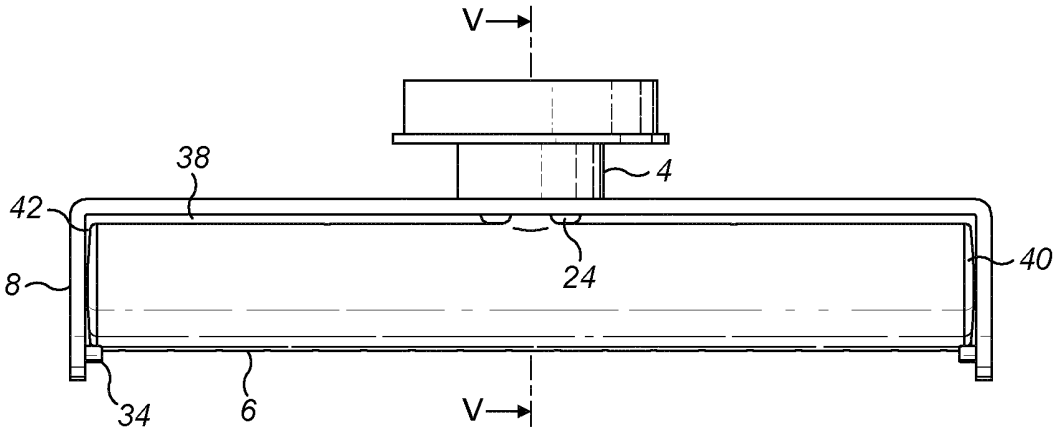

FIG. 4

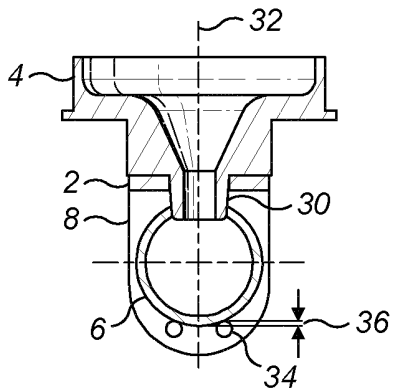

FIG. 5

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EUROPEAN SEARCH REPORT

Application Number
EP 11 19 0696

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	26 April 2012	Cobusneanu, D

CATEGORY OF CITED DOCUMENTS

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REFERENCES CITED IN THE DESCRIPTION

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