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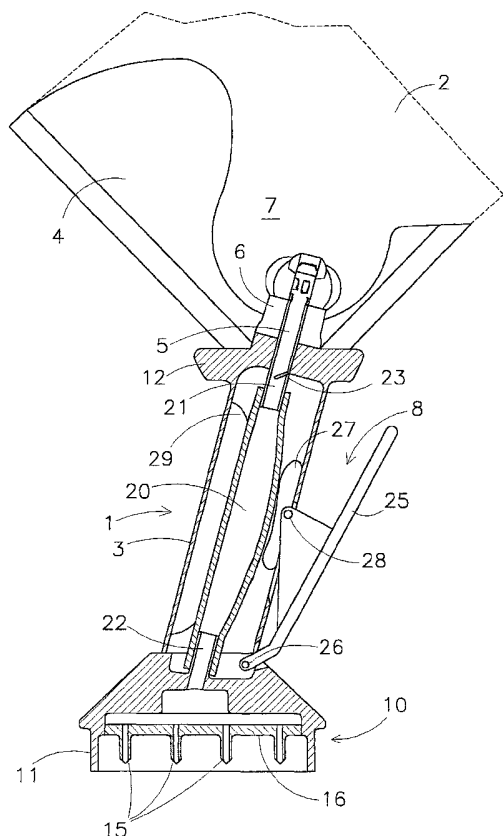
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(54) Title: HAND HELD DISPENSING DEVICE FOR DISPENSING A SUBSTANCE



(57) Abstract: A handheld device (1) for dispensing a substance, for example a foodstuff. The device (1) comprises a reservoir (2) for the substance and a housing (3) which can be gripped in one hand, with a top side and an underside. The reservoir is provided at the top of the housing and is supported on the housing. The device further comprises a manually actuable pump (8) which is accommodated in the housing and can be actuated by one or more fingers of the hand which is gripping the housing. The device is provided with a base (10) which is provided at the bottom of the housing. One or more downwardly directed dispensing nozzles (15) are provided in the base. The pump is designed to pump the substance out of the reservoir to the one or more dispensing nozzles (15), so that substance is dispensed from the device in a dispensing pattern.



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Handheld dispensing device for dispensing a substance

The invention relates to a handheld dispensing device for dispensing a substance in accordance with the preamble of claim 1.

5 US 3,758,005 has disclosed a dispensing device which can be held in one hand in order to dispense, for example, foodstuffs, such as mayonnaise, ketchup, etc.

10 This known device has a housing with a housing part which can be picked up in one hand. A pivotable lever extends along the front side of the housing part and can be actuated by the fingers of the hand which is being used to hold the housing. The lever is coupled to a pump for dispensing the substance via the dispensing nozzle.

15 It is an object of the invention to provide an improved handheld dispensing device.

20 To this end, the invention provides a handheld dispensing device according to claim 1, in which a base is provided at the underside of the housing part which can be held in one hand, and in that the one or more dispensing nozzles are provided in the base and are directed downwards.

25 The dispensing device according to the invention can be held in one hand by the user as a result of this hand of the user gripping the relevant part of the housing of the device. During normal use of the dispensing device, the reservoir is then above this hand and the one or more dispensing nozzles are located
30 below this hand. Consequently, the user can hold his hand and arm in a natural position above the object onto which the substance is being dispensed.

35 The dispensing device may be designed in such a manner that the device is suitable for intensive use, but a design which is suitable for consumer use is also possible.

The dispensing device can advantageously be used by catering staff. By way of example, the device may be used in a fast-food restaurant for applying an edible substance, such as mayonnaise, ketchup, mustard, etc., to a hamburger, for example. Another
5 possible use may be the application of a topping to coffee, other drink or to ice-cream. Obviously, countless further applications are also possible.

Associated with the dispensing device there may be a retaining
10 feature allowing the device to be retained when it is not being used. By way of example, the dispensing device is provided with hanging means or the like, allowing the device to be hung at a suitable location. The retaining feature could also be designed as a clamping feature or, for example, a support structure which
15 can be placed onto a work surface.

The pump is preferably a manually actuatable pump, but as an alternative an electrically driven pump, for example with a (rechargeable) battery is also conceivable.
20

It is preferable for the base to be designed in such a manner that the dispensing device with filled reservoir can be placed stably with its base on a horizontal surface. This makes it easy for the user, for example during preparation of food, to
25 constantly place the dispensing device on its base, for example on top of a work surface.

During use in a kitchen, for example, it is advantageous for the dispensing device not to be arranged fixedly and not to have to
30 be put back at a fixed location, so that it can be picked up and then used at any desired location in the kitchen.

The base preferably comprises one or more downwardly directed projections, in such a manner that the one or more dispensing
35 nozzles are located at a distance above the supporting surface formed by the projections of the base, so that the dispensing nozzles do not come into contact with the surface onto which the device is placed.

It is preferable for each dispensing nozzle to be formed by a self-closing dispensing valve made from flexible material, for example of the duckbill type.

- 5 In one advantageous embodiment, there are a plurality of dispensing valves which form part of a single integral valve member formed from the flexible material.

The base can preferably be exchanged for a different base with a
10 different dispensing pattern.

The pump preferably comprises a hose element of the self-restoring type, which hose element is connected to the reservoir at the top end and to the one or more dispensing nozzles at the
15 bottom end.

In an embodiment which is advantageous in practice, the housing is provided with a top hose coupling and a bottom hose coupling, for releasably fitting the hose element, and the housing can be
20 opened up in order for the hose element to be removed and fitted.

The reservoir can preferably be released from the housing, the housing being provided with a first coupling element and the reservoir being provided with a second coupling element, which
25 can be coupled thereto, in order to create a connection between the reservoir and the pump.

Removing the reservoir makes it possible, for example, for the reservoir to be a pouch which is coupled to the housing in the
30 filled state. This allows the substance to be stored in pouches. When using pouches as the reservoir, it is preferable for the housing to be provided on the top side with a supporting member for the pouch. By way of example, the supporting member is open from above, so that it is easy for the pouch to be introduced
35 from above by the user.

The supporting member for the bag is preferably provided with a cut-out at the first coupling element of the housing, so that it

is easy for the user to couple the second coupling element to the first coupling element.

In a variant, the reservoir is a pouch which is accommodated in a box body, which box body can be removed from the housing.

It is ergonomically advantageous if the housing is provided with a collar rim in order for the housing to be supported on the top side of the hand.

10

Also, it is ergonomically advantageous if that part of the housing which can be gripped by the hand is at an acute angle to the base, which angle preferably lies between 80 and 60 degrees.

15 The dispensing device according to the invention will be explained in more detail below with reference to the drawing, in which:

Figure 1 shows, partially in cross section, an exemplary embodiment of the dispensing device according to the invention.

Figure 1 shows a handheld dispensing device 1 for dispensing a substance, for example a foodstuff such as mayonnaise, ketchup, a topping for coffee or ice-cream, etc. Figure 1 shows the normal position of the device 1, as will be explained in more detail below.

Dashed lines indicate a pouch 2 which serves as a reservoir for the substance. The pouch 2 is made, for example, from plastic film and has a volume of, for example, between 0.4 and 1 litre.

The device 1 comprises a housing 3 which can be gripped by one hand (of an adult) and has a top side and an underside. The housing 3 is more or less tubular, it being possible for the cross section to be of any desired shape, such as round, oval, square with rounded corners, etc., and to have cross-sectional dimensions which are such that the surrounding grip by the hand is not complete, but is sufficient to provide a good grip.

At the top side, the housing 3 is provided with a supporting member 4 for the pouch 2. In this example, the supporting member 4 is designed as a bowl which is open at the top, so that the pouch 2 comes to lie largely between two side walls of the bowl 4, which lie at a distance from one another. As an alternative to a bowl 4, it is also possible to select a different design for the supporting member 4, for example as a rack.

The pouch 2 can be removed from the housing 3. At the top, the housing 3 is provided with a first coupling element 5, and the pouch 2 is provided with a second coupling element 6, which can be coupled thereto, in order to create a connection between the reservoir and the pump. By way of example, the first and second coupling elements are of a known type, the second coupling element being provided with a female element which is secured in the wall of the pouch and has a hole for the insertion of the first coupling element, which is designed as a male element, the second coupling element also being provided with a closure means for the hole, for example a stopper which seals the hole on the inner side of the pouch until the coupling has been produced. If appropriate, it is possible to provide for the stopper to be coupled to the male element, so that the pouch can be removed from the housing even when it is not completely empty, in which case the stopper is moved back into its closing position in the hole of the female element, after which it is decoupled from the male element. A coupling of this type is described, for example, in EP 0 749 358.

To make it easier to couple the first and second coupling elements, the supporting member 4 is provided with a cut-out which is open at the top and in each of the side walls of the bowl 4 continues downwards to the first coupling element 5.

In a variant which is not shown, the reservoir is a pouch which is accommodated in a box body, which box body can be removed from the housing 3.

In yet another variant, the reservoir is a bucket with a lid which can preferably be removed from the housing.

The weight of the pouch 2 is therefore supported on the top side of the housing 1.

- 5 A manually actuable pump 8, which can be actuated by one or more fingers of the hand which is gripping the housing 3, is accommodated in the housing 3.

The dispensing device 1 also comprises a base 10 which is
10 provided on the underside of the housing 3.

In the base 10 there are a plurality of downwardly directed dispensing nozzles 15 for the substance which is to be dispensed.

- 15 The pump 8 is designed to pump the substance out of the pouch 2 to the dispensing nozzles 15, so that the substance is dispensed from the device in a dispensing pattern.

The pattern may simply comprise a single stream of substance, but
20 may also comprise a combination of streams, for example with one central stream and a plurality of streams arranged in a circle around it. Obviously, completely, different patterns are also conceivable.

- 25 In this example, the base 10 is designed in such a manner that the dispensing device 1 with filled pouch 2 can be positioned stably with its base 10 on a horizontal surface.

In the embodiment which is shown, the base 10 has a downwardly
30 directed annular wall 11, the dispensing nozzles 15 being arranged inside the annular wall 11. As an alternative to the annular wall 11, it would also be possible to provide a plurality of downwardly directed projections on the underside of the base 10.

35

Each dispensing nozzle 15 is formed by a self-closing dispensing valve made from flexible material, which valves therefore open under the influence of the pressure of the substance created by the pump 8 and, at the end of the pump stroke, are automatically

closed again. By way of example, the dispensing valves 15 are of the duckbill type. The dispensing valves 15 advantageously form part of a single integral valve member 16 which is formed from the flexible material. In this example, the member 16 is more or less in disc form, with a projection in the form of a dispensing valve 15 at a plurality of locations.

The base 10 or just the dispensing valve member 16 of this base 10 can be exchanged for a different base or dispensing valve member 16 with a different dispensing pattern.

The pump 8 comprises a hose element 20 of the self-restoring type, which hose element 20 is connected to the pouch 2 at the top end and to the dispensing nozzles 15 at the bottom end.

The housing 3 is provided with a top hose coupling 21, for example in the form of a hose nipple, and a bottom hose coupling 22 for releasably fitting the hose element 20. Furthermore, the housing 3 can be opened, for example by means of a cover in the wall of the housing 3, in order for the hose element 20 to be removed and fitted. This may be advantageous during cleaning of the device 1 or when the hose element 20 is being replaced.

In or close to the top hose coupling 21, there is a suction valve 23 which, together with the dispensing valves 15, delimit the pump chamber.

In a variant which is not shown, there is also a valve arranged in or close to the hose coupling 22. This valve may be present, for example, if the substance contains (edible) particles, which make it difficult to close the dispensing valves 15 correctly.

In the example shown, the pump-actuating member is a pivotable lever 25, which in the example shown is secured to the housing 3 in such a manner that it can pivot about a pivot pin 26 at the bottom end.

It is also possible for the pivotable handle 25 to be pivotably secured to the housing 3 at its top end. In another variant,

instead of a pivotable lever 25 there is a button which can be actuated by one or more fingers and, by way of example, is accommodated displaceably in the housing 3.

5 To prevent injury to the user as a result of repeated execution of the pump actuation, it is possible to provide for the housing 3 to allow for the pivotable lever 25 to be fitted as desired, so that the lever pivots at its top end or at its bottom end. Also, in a kitchen of a restaurant or the like it is possible to
10 provide a plurality of dispensing devices, for example for mayonnaise, mustard and ketchup, in which case different designs of the pump-actuating member are provided, so that the staff are not constantly executing the same pump-actuating movement.

15 In the housing 3 there is a moveable compression element 27 which on one side bears against the outer side of the hose element 20.

The pivotable lever 25 is coupled via a hinge pin 28 to the compression member 27, in such a manner that when the lever 25 is
20 actuated, the hose element 20 is compressed by the compression element 27. Opposite the compression element 27, the housing 3 is provided with an abutment 29 for the hose element 20.

The wall of the hose element 20 is advantageously designed to be
25 relatively thin, so that the wall, which is more or less fixed at both ends, is stretched in the axial direction when the lever 25 is being squeezed. This axial stretching leads to a considerable restoring force on the part of the hose element 20, resulting in a favourable sucking action.

30

The hose element may be adapted to the substance which is to be dispensed and may, for example, be matched to the viscosity of the substance.

35 In the vicinity of the upper side, the housing 3 is provided with a collar rim 12 for supporting the housing 3 on the top side of the hand.

The handheld tubular part of the housing 3 - on the side of the actuating member (lever 25) of the pump 8 which is to be actuated by the fingers - is not at right angles, but rather is at an acute angle with respect to the underside of the base 10, this angle preferably lying between 80 and 60 degrees. This inclined inclination is ergonomically advantageous and helps the user's hand and arm to achieve a natural position.

When a single pump stroke of the pump 8 is executed, a relatively accurately defined portion of the substance is dispensed.

It is possible to provide adjustment means in order to limit the stroke of the lever 25, in order in this way to adjust the size of the portion of substance. As an alternative, the portion size can also be adjusted by means of the design of the hose element 20. The abutment 29 may also be exchangeable or may have an adjustable position, in order in this way to adjust the portion size..

As an alternative to a pump 8 with a hose element 20, it is also possible to provide a different pump, for example a piston pump.

In a variant which is not shown, the housing 3 is provided with supporting means for two pouches 2, with a coupling element 5 for each pouch 2. Furthermore, in this case there is provision for the housing 3 to hold two hose elements 20, which can preferably be compressed by actuation of a common lever 25 or the like. At their bottom ends, the hose elements 25 are connected to the dispensing nozzles, so that it is possible to create a pattern of two substances. In a variant, the two substances are combined before they leave the dispensing nozzles, so that a mixture is obtained.

To promote hygiene, it is possible for the hose element 20, together with the valve member 16 or an assembly of dispensing nozzles 15 which is designed in some other way, to form a single unit, if appropriate together with the top hose coupling 21, so that this entire assembly can be removed from the housing 3 and

can preferably be discarded. Consequently, the assembly does not have to be cleaned.

CLAIMS

1. Handheld device (1) for dispensing a substance, for example a foodstuff, such as mayonnaise, ketchup, topping, etc.,
5 comprising:
- a reservoir (2) for the substance,
- a housing (3) having a housing part which can be held securely in one hand, the reservoir (2) being provided at the top of the housing part which can be held in one hand and being
10 supported on the housing (3),
- a pump (8), which is accommodated in the housing and can be actuated by the hand which is holding the housing, the pump (8) being designed to pump the substance out of the reservoir to one or more dispensing nozzles (15) which are in communication with
15 the pump, so that the substance is dispensed from the device in a dispensing pattern,
characterized in that a base (10) is provided at the underside of the housing part which can be held in one hand, and in that the one or more dispensing nozzles (15) are provided in the base and
20 are directed downwards.
2. Dispensing device according to claim 1, in which the base is designed in such a manner that the dispensing device with filled reservoir (2) can be positioned stably, by means of the
25 base, on a substantially horizontal surface.
3. Dispensing device according to claim 2, in which the base (10) comprises one or more downwardly directed projections (11) which project downwards beyond the one or more dispensing
30 nozzles.
4. Dispensing device according to one or more of claims 1-3, in which each dispensing nozzle (15) is formed by a self-closing dispensing valve, preferably made from flexible material.
35
5. Dispensing device according to claim 4, in which the dispensing valves (15) are of the duckbill type.

6. Dispensing device according to claim 4 or 5, in which a plurality of dispensing valves (15) are provided, forming part of a single, integral dispensing valve member (16), preferably formed from flexible material, which dispensing valve member is
5 preferably designed to be releasable.

7. Dispensing device according to one or more of the preceding claims, in which the base (10) or the dispensing-valve member (16) is arranged releasably on the housing (3) and can be
10 exchanged for a different base or for a dispensing valve member with a different dispensing pattern.

8. Dispensing device according to one or more of the preceding claims, in which the pump is accommodated in the housing part
15 which can be gripped by one hand.

9. Dispensing device according to one or more of the preceding claims, in which the pump comprises a hose element (20) of the self-restoring type, which hose element is connected at the top
20 end to the reservoir (2) and at the bottom end to the one or more dispensing nozzles (15).

10. Dispensing device according to claim 9, in which the housing (3) is provided with a top hose coupling (21) and a
25 bottom hose coupling (22) for releasably fitting the hose element, and in which the housing (3) can be opened in order to remove and fit the hose element.

11. Dispensing device according to one or more of the preceding
30 claims, in which the pump-actuating member is a pivotable lever (25) which is secured to the housing (3) in such a manner that it can pivot about a pivot pin (26).

12. Dispensing device according to claims 9 and 11, in which a
35 moveable compression element (27) is provided in the housing and bears against the outer side of the hose element (20) on one side, and in which the pivotable lever (25) acts on the compression member, in such a manner that when the lever is

actuated the hose element is compressed by the compression element.

13. Dispensing device according to one or more of the preceding
5 claims, in which the reservoir (2) can be removed from the housing, the housing (3) being provided with a first coupling element (5) and the reservoir being provided with a second coupling element, which can be coupled thereto, in order to create a connection between the reservoir and the pump.

10

14. Dispensing device according to claim 13, in which the reservoir is a pouch (2).

15. Dispensing device according to claim 14, in which the
15 housing is provided with a supporting member (4) for the pouch (2) on the top side.

16. Dispensing device according to claim 15, in which the
supporting member (4) is provided with a cut-out (7) at the first
20 coupling element (5).

17. Dispensing device according to claim 13, in which the reservoir is a pouch which is accommodated in a box body, which box body can be removed from the housing.

25

18. Dispensing device according to one or more of the preceding claims, in which the housing is provided with a collar rim (12) for supporting the housing (3) on the top side of the hand.

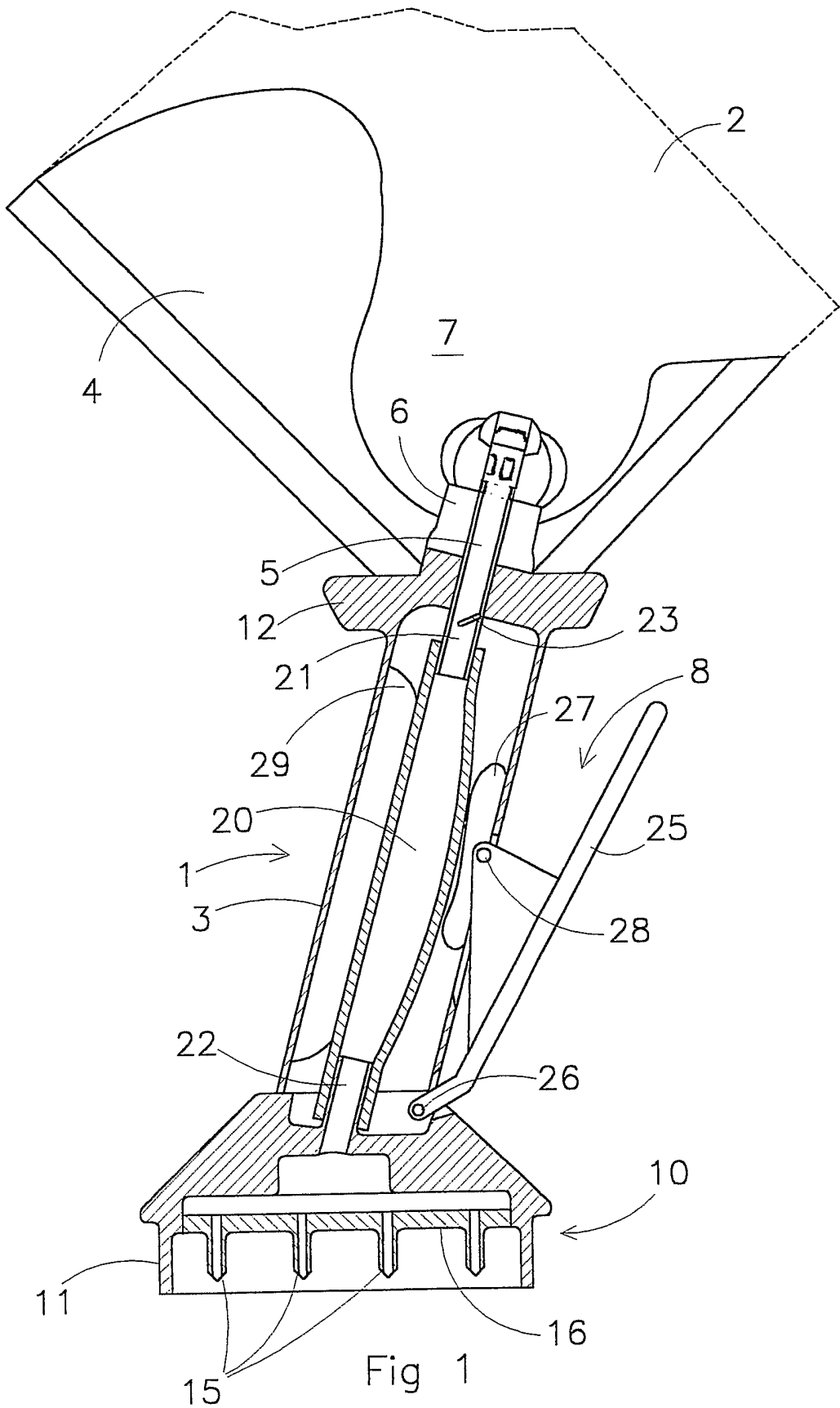
30 19. Dispensing device according to one or more of the preceding claims, in which the housing part which can be gripped in one hand is substantially tubular.

20. Dispensing device according to one or more of the preceding
35 claims, in which the housing part which can be gripped in one hand is at an acute angle to the base, which angle is preferably between 80 and 60 degrees.

21. Dispensing device according to one or more of the preceding claims, in which the dispensing device is provided with a plurality of storage chambers, and in which an associated pump for each storage chamber is provided in the housing.

5

22. Dispensing device according to one or more of the preceding claims, in which the pump(s) and the dispensing nozzle(s) form a single unit and can be removed from the housing, preferably are designed to be disposable.



INTERNATIONAL SEARCH REPORT

Inte 1al Application No

PCT/NL 02/00508

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 -B67D5/02 A47G19/18 G01F11/08

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B67D A47G G01F B05B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 523 765 A (UNILEVER NV ;UNILEVER PLC (GB)) 20 January 1993 (1993-01-20) column 3, line 29 - line 40 column 4, line 40 - line 55; figures 1,2,4 ---	1
A	US 3 758 005 A (CHRISTINE W ET AL) 11 September 1973 (1973-09-11) column 2, line 38 - line 42 column 3, line 1 - line 28; figures 1,2,4 ---	1
A	US 5 186 559 A (FU PETER P) 16 February 1993 (1993-02-16) abstract; figure 1 ---	1
A	EP 0 745 342 A (ASEPT INT AB) 4 December 1996 (1996-12-04) abstract; figure 1 ---	1
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☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

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INTERNATIONAL SEARCH REPORT

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 730 327 A (STERN LEIF EINAR) 24 March 1998 (1998-03-24) abstract; figures 2-7 ----	1
A	WO 87 02422 A (HARRIS GRAEME WILLIAM) 23 April 1987 (1987-04-23) abstract; figures 1,2 -----	1

INTERNATIONAL SEARCH REPORT

International Application No

PCT/NL 02/00508

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0523765	A	20-01-1993	AU 646345 B2	17-02-1994
			AU 1937692 A	07-01-1993
			CA 2072724 A1	05-01-1993
			DE 69210317 D1	05-06-1996
			DE 69210317 T2	12-09-1996
			EP 0523765 A1	20-01-1993
			ES 2086637 T3	01-07-1996
			FI 923068 A	05-01-1993
			NZ 243360 A	25-11-1993
			US 5273186 A	28-12-1993
			ZA 9204921 A	03-01-1994
US 3758005	A	11-09-1973	US 3873007 A	25-03-1975
US 5186559	A	16-02-1993	NONE	
EP 0745342	A	04-12-1996	SE 503904 C2	30-09-1996
			AT 169472 T	15-08-1998
			DE 69600515 D1	17-09-1998
			DE 69600515 T2	08-04-1999
			EP 0745342 A1	04-12-1996
			JP 8322535 A	10-12-1996
			SE 9501968 A	30-09-1996
			US 5749495 A	12-05-1998
US 5730327	A	24-03-1998	SE 502095 C2	14-08-1995
			AU 8008194 A	08-05-1995
			CA 2173604 A1	27-04-1995
			DE 69417905 D1	20-05-1999
			DE 69417905 T2	09-12-1999
			EP 0721309 A1	17-07-1996
			SE 9303419 A	19-04-1995
			WO 9510963 A1	27-04-1995
WO 8702422	A	23-04-1987	AU 591197 B2	30-11-1989
			AU 6527786 A	05-05-1987
			WO 8702422 A1	23-04-1987
			EP 0241489 A1	21-10-1987
			NZ 217881 A	30-06-1988