

(19)



Europäisches Patentamt  
European Patent Office  
Office européen des brevets



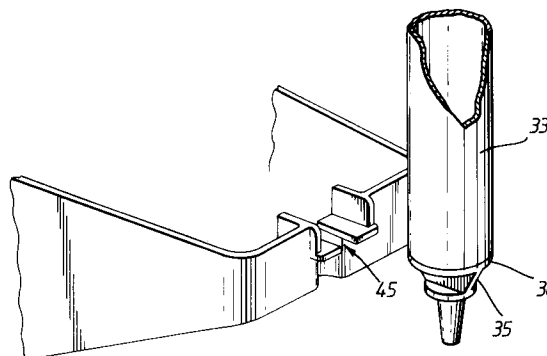
(11) Publication number:

**0 471 398 A1**

(12)

**EUROPEAN PATENT APPLICATION**(21) Application number: **91201930.4**(51) Int. Cl.<sup>5</sup>: **A47K 5/12**(22) Date of filing: **23.07.91**(30) Priority: **15.08.90 GB 9017852**(43) Date of publication of application:  
**19.02.92 Bulletin 92/08**(84) Designated Contracting States:  
**AT BE CH DE DK ES FR GB GR IT LI NL SE**(71) Applicant: **UNILEVER N.V.****P.O. Box 137  
NL-3000 DK Rotterdam(NL)**(84) **BE CH DE DK ES FR GR IT LI NL SE AT**(71) Applicant: **UNILEVER PLC****Unilever House Blackfriars P.O. Box 68  
London EC4P 4BO(GB)**(84) **GB**(72) Inventor: **Bunschoten, Gerrit Klaas****Laan van Zuylenveld 48  
NL-3611 AJ Oud Zuylen(NL)**Inventor: **van den Heyden, Lambertus  
Gerardus P.****Kampweg 17  
NL-3981 EX Bunnik(NL)**(74) Representative: **van Gent, Jan Paulus et al  
Unilever N.V., Patent Division, P.O. Box 137  
NL-3130 AC Vlaardingen(NL)**(54) **Dispenser for liquid product.**

(57) A dispenser (1) for delivering aliquots of a liquid product (25) from a reservoir (23), comprising a conduit (33) which comprises one end (34) for receiving liquid from the reservoir, a second end provided with a valve (36) through which the liquid is expelled, and a flexible portion between the first and second ends for being compressed by a compressing mechanism (13) of a dispensing device, thereby to close the conduit at a pinch position (49) in the region of said one end and for then being compressed by the mechanism, between the pinch position and the valve, to create excess pressure of liquid which is thus expelled through said valve, whereby there is provided a narrow opening (45) into which a correspondingly shaped portion (35) of the valve (36) can be securely fitted.

*Fig. 5.***EP 0 471 398 A1**

The present invention is concerned with a dispenser of the kind for delivering aliquots of a liquid product from a reservoir. More in particular, it relates to a liquid soap dispenser which is used in washrooms etc.

Such dispensers are known in the art. For instance, the European patent application 314,233 discloses a dispenser comprising a conduit which comprises one end for receiving liquid from a reservoir, a second end provided with a valve through which the liquid is expelled, and a flexible portion between the first and second ends for being compressed by a compressing mechanism of a dispensing device, thereby to close the conduit at a pinch position in the region of said one end and for then being compressed by the mechanism, between the pinch position and the valve, to create excess pressure of liquid which is thus expelled through said valve.

The reservoir of the dispenser is a flexible bag filled with liquid soap, which is manufactured integrally with the conduit. When the liquid soap in the reservoir is exhausted the flexible bag and conduit are simply removed by the janitor and replaced by a new bag with liquid soap.

The known dispensers are multi-functional in that they may be used to deliver small amounts of various types of liquid products. Their most wide spread use is in toilet rooms and wash rooms where they are used to deliver a hand-washing product such as liquid soap. However, the same dispensers may also be used for other purposes such as for dispensing liquid disinfecting or sanitizing products in hospitals, especially in the vicinity of surgery rooms. It will be evident that it is important in such cases that the dispenser always contains the required type of liquid product.

Because the dimensions of the flexible bags containing the various types of liquid products are identical, it cannot be guaranteed that the dispensers always contain the right type of liquid for the desired purpose.

Futhermore, it was found that in the dispensers of the known kind the fixing of the valve and the flexible conduit into the dispenser sometimes leaves to be desired. The action of the compressing mechanism onto the conduit may twist the conduit and the valve around their axis and the flexible conduit may be pushed away laterally. As a consequence, the dispenser is no longer capable of delivering a constant volume of liquid product.

It is an object of the present invention to provide an improved dispenser which overcomes one or more of these disadvantages. We have now found that this object can be achieved by the dispenser according to the present invention.

According to a first aspect, there is provided a

dispenser of the aforementioned kind, which is characterized in that there is provided a narrow opening into which a correspondingly shaped portion of the valve can be securely fitted.

The narrow opening in the dispenser ensures that only refill packs containing the desired type of liquid product will be mounted in the dispenser, because other packs containing different products simply will not fit. It is therefore no longer possible that a janitor mistakenly fills the dispenser with the wrong type of product.

The narrow opening in the dispenser is preferably in the form of a slit having a width of less than 3 mm, and more preferably less than 2 mm. An additional advantage of this construction is that the flow rate of the liquid product through the valve is increased due to the narrow opening in the valve, which proved to have a self-cleaning effect on the valve. The possibility of bacterial growth entering the valve is thereby further diminished.

In a preferred embodiment of the invention, the dispenser comprises a further narrow opening in the bottom shelf of the dispenser, into which a correspondingly shaped part of the collar can be securely fitted. In this case, the dispenser possesses a dual safeguard that no incorrect refill packs are mounted, because only packs containing two narrow portions, in the collar and in the valve, will fit. It is also possible to distinguish a further type of liquid product by means of the additional narrow portion in the dispenser.

It is especially convenient if the conduit is a tube which is flexible along substantially the whole of its length. Suitable flexible materials for constructing the flexible conduit are known in the art.

According to a further aspect, there is provided a refill pack suitable for use in the dispenser according to the invention, comprising a reservoir for holding the liquid product and a attached thereto a flexible conduit and a valve comprising a narrow portion which can be securely fitted onto a correspondingly shaped portion of the dispenser.

The invention will now be better explained by way of the following preferred embodiment, and with reference to the accompanying drawings, in which:

Figure 1 is a section view of a dispenser according to the invention including a flexible bag reservoir, a conduit having a flexible portion and a valve.

Figure 2 is a cross-section view of a part of the dispenser according to the invention, showing the flexible conduit attached to a flexible reservoir and having a valve at its lower end.

Figure 3 shows the lower part of the same part of the dispenser as in Figure 2, but rotated over 90° along its vertical axis, and showing the narrow part of the valve.

Figure 4 shows a horizontal cross-section through the valve depicted in Figure 3 at the level indicated by A-A.

Figure 5 is a schematic drawing showing how the narrow portion of the valve can be securely fitted onto a correspondingly shaped portion of the dispenser.

In Figure 1 there is shown a dispenser (1) for liquid soap comprises a casing (3) having a front wall (5) and a back wall (7). The dispenser also comprises a lever (9) pivotally mounted on hinge (11). Attached to the lever is a compressing mechanism (13) which comprises a finger (15) pivotally mounted at end (16) by hinge (17) and attached at the other end (18) by a compression spring (19). At that other end, the finger also defines an elbow (21).

Mounted in the dispenser is a flexible bag reservoir (23) containing the liquid product (25). A collar (27) connects the reservoir to a conduit (33). The reservoir and conduit are mounted in the dispenser by means of the collar (27) fitting into a slotted shelf (31) of the dispenser which thereby supports the reservoir.

The dispenser of the invention comprises a flexible conduit (33) which at one end (34) is arranged to receive liquid from the reservoir through the collar and at the other end is provided with a valve (36). This valve comprises a narrow part (35) which fits securely into a corresponding narrow opening of the dispenser. For clarity, the fitting of the valve (36) in the narrow opening of the dispenser is not shown here. In the depicted situation, the valve (36) is a conventional ball valve comprising a chamber (37) in which is located a ball (39) which is urged by a compression spring (40) against an orifice (41). It will be understood, however, that other suitable types of one-way valves may also be contemplated. The valve is also provided with an outlet nozzle (43) through which the liquid soap is to be dispensed.

With the lever in the rest position, the elbow (21) of the finger of the compressing mechanism just impinges on the flexible tube and compresses it very slightly.

When the lever (9) is partly actuated by pulling in the direction of the arrow (A), the elbow (21) closes the tube at a pinch position (49), just below the first end of the flexible tube. This situation is shown in Figure 1. The actuating action traps a quantity of liquid soap (51) and the slight excess pressure in the tube below the pinch position begins to move the ball away from the valve orifice so that liquid soap begins to enter the chamber.

When the lever is pulled forward to its fullest extent in the direction of arrow (A), the flexible tube is compressed along the entire length of the finger and the liquid previously trapped below the pinch

position is ejected from the outlet (43).

Figure 2 shows a flexible bag reservoir (23) containing the liquid product (25). A collar (27) connects the reservoir to a conduit (29). At the other end of the conduit there is a valve (36) comprising a narrow portion, which feature cannot be seen in the shown orientation, however.

Figure 3 shows the same detail as Figure 2, but rotated over 90° along its vertical axis. The narrow portion (35) of the valve (36) is now clearly visible.

Figure 4 is a cross section through the valve (36) at the level A-A as indicated in Figure 3. The narrow portion (35) of valve (36) contains an even narrower passage for the liquid product.

Figure 5 shows how the flexible conduit (29) comprising the valve (36) and the narrow portion (35) thereof, may be securely fitted in the dispenser according to the invention by means of the correspondingly shaped narrow opening (45).

## Claims

1. A dispenser (1) for delivering aliquots of a liquid product (25) from a reservoir (23), comprising a conduit (33) which comprises one end (34) for receiving liquid from the reservoir, a second end provided with a valve (36) through which the liquid is expelled, and a flexible portion between the first and second ends for being compressed by a compressing mechanism (13) of a dispensing device, thereby to close the conduit at a pinch position (49) in the region of said one end and for then being compressed by the mechanism, between the pinch position and the valve, to create excess pressure of liquid which is thus expelled through said valve, characterized in that there is provided a narrow opening (45) into which a correspondingly shaped portion (35) of the valve (36) can be securely fitted.
2. A dispenser according to Claim 1, wherein the narrow opening (45) is in the form of a slit having a width of less than 3 mm, preferably less than 2 mm.
3. A dispenser according to either preceding Claim, whereby there is provided a further narrow opening in the bottom shelf (31) of the dispenser, into which a correspondingly shaped part of the collar (37) can be securely fitted.
4. A dispenser according to either preceding Claim, wherein the conduit (33) is a tube which is flexible along substantially the whole of its length.

5. A dispenser according to any preceding Claim,  
wherein the reservoir (23) is a flexible bag.
6. Refill pack suitable for use in the dispenser  
according to any one of the preceding claims, 5  
comprising a reservoir for holding the liquid  
product and a attached thereto a flexible con-  
duit (33) and a valve (36) comprising a narrow  
portion (35) which can be securely fitted onto a 10  
correspondingly shaped portion of the dispens-  
er.

15

20

25

30

35

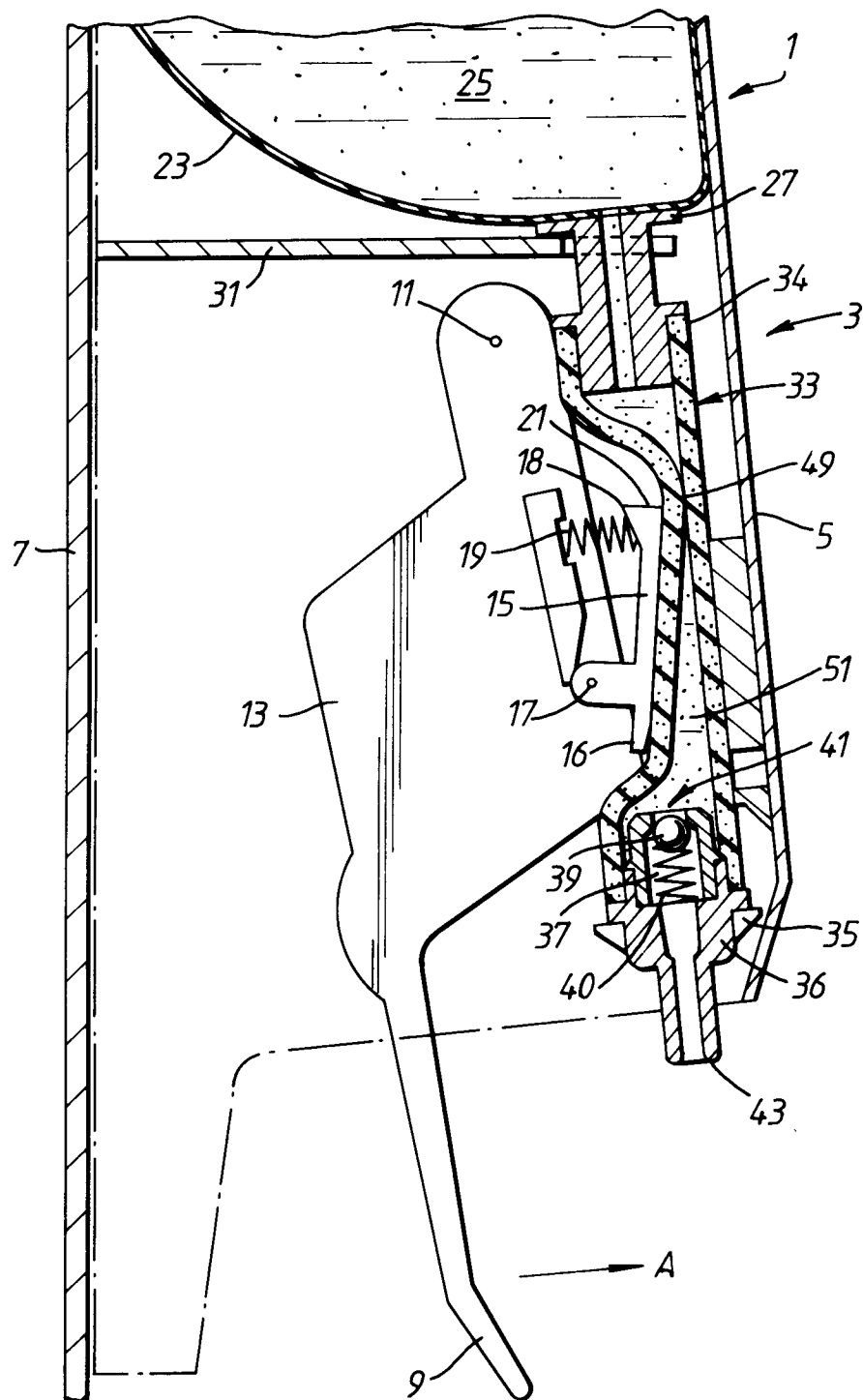
40

45

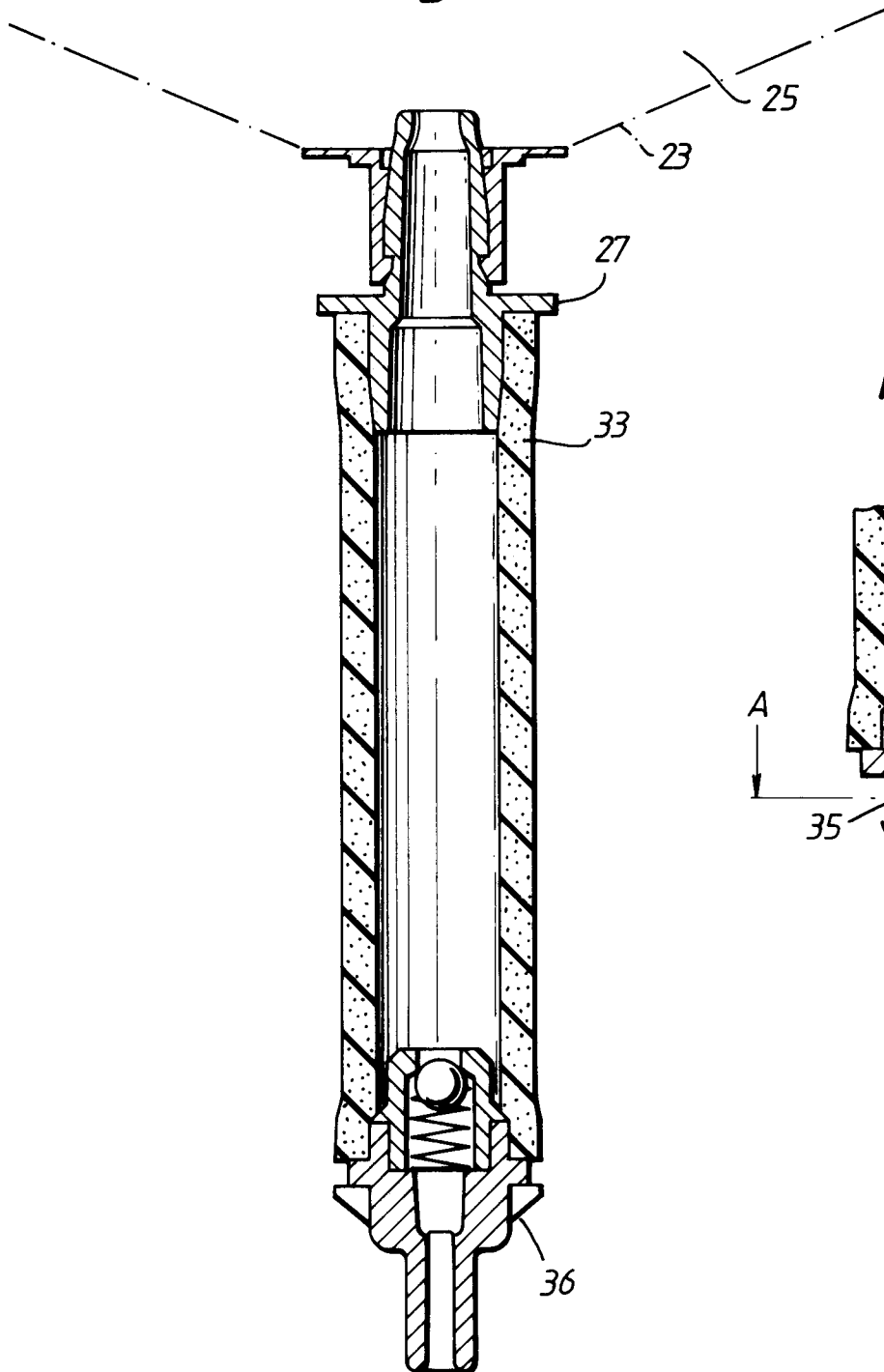
50

55

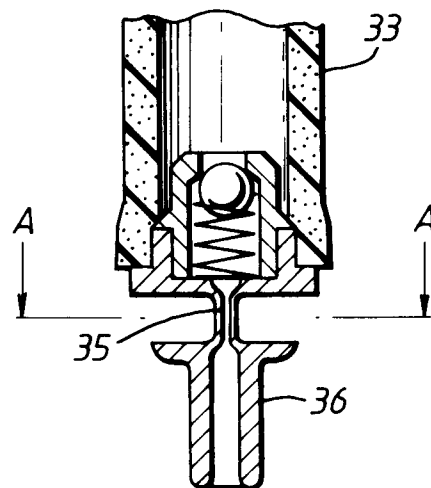
Fig. 1.



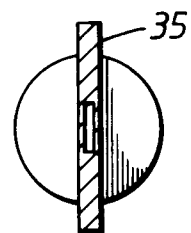
*Fig. 2.*



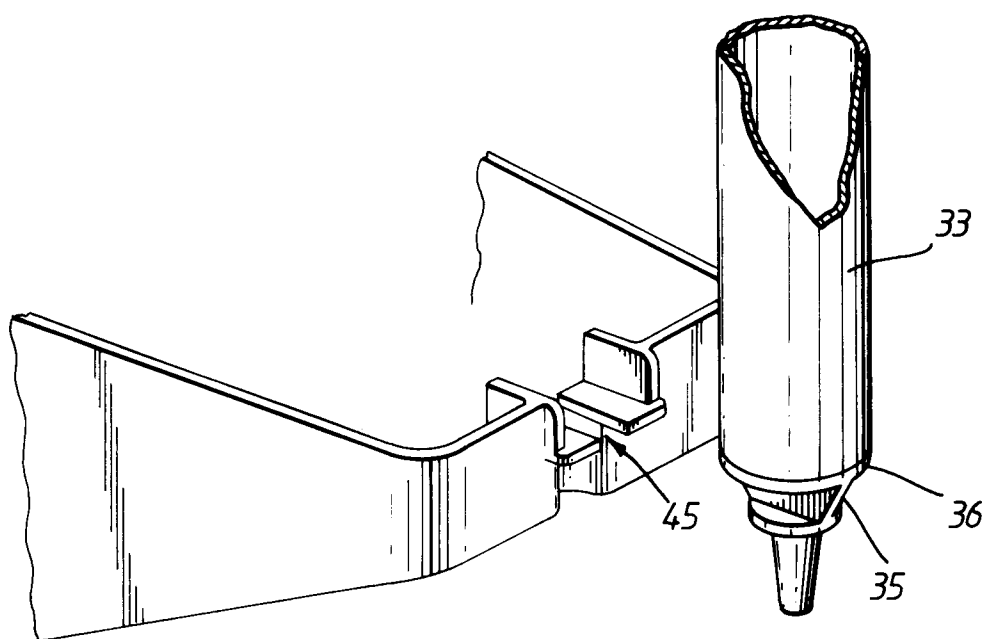
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*





European  
Patent Office

## EUROPEAN SEARCH REPORT

Application Number

**EP 91 20 1930**

### DOCUMENTS CONSIDERED TO BE RELEVANT

| Category                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Citation of document with indication, where appropriate,<br>of relevant passages                     | Relevant<br>to claim                           | CLASSIFICATION OF THE<br>APPLICATION (Int. Cl.5) |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|------------------------------------------------|--------------------------------------------------|
| X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | DE-U-8 915 054 (BASOTHERM GMBH)<br>* page 5, paragraph 3 - page 8, paragraph 2; figures * *<br>- - - | 1,3-6                                          | A 47 K 5/12                                      |
| X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | CH-A-306 956 (ROSSETTI)<br>* the whole document * *<br>- - - - -                                     | 1,3-6                                          |                                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                      |                                                | TECHNICAL FIELDS<br>SEARCHED (Int. Cl.5)         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                      |                                                | A 47 K                                           |
| The present search report has been drawn up for all claims                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                      |                                                |                                                  |
| Place of search<br>The Hague                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                      | Date of completion of search<br>25 November 91 | Examiner<br>FORDHAM A.K.                         |
| <div><div><b>CATEGORY OF CITED DOCUMENTS</b><br/>X : particularly relevant if taken alone<br/>Y : particularly relevant if combined with another<br/>document of the same category<br/>A : technological background<br/>O : non-written disclosure<br/>P : intermediate document<br/>T : theory or principle underlying the invention</div><div>E : earlier patent document, but published on, or after<br/>the filing date<br/>D : document cited in the application<br/>L : document cited for other reasons<br/>-----<br/>&amp; : member of the same patent family, corresponding<br/>document</div></div> |                                                                                                      |                                                |                                                  |