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(71) Applicant: **MINNESOTA MINING AND
MANUFACTURING COMPANY**
St. Paul, Minnesota 55133-3427 (US)

(72) Inventors:

- **Joseph, Stephen C.P.**
Hartshill Nuneaton
Warwickshire CV10 OXP (GB)

- **Douglas, Malcolm F.**
Pennard Swansea SA3 2DP (GB)
- **Butler, Alan F.**
Atherstone Warwickshire CV9 1HG (GB)
- **Bastow, David R.**
Staffordshire B77 3EU (GB)
- **Salhus, Jerry E.**
Bloomington MN 55438 (US)
- **Hartfel, Margaret E.**
St. Paul, MN 55102 (US)

(74) Representative: **Wightman, David Alexander**
Barker Brettell
138 Hagley Road
Edgbaston, Birmingham B16 9PW (GB)

(54) **Apparatus for spraying liquids, and disposable containers and liners suitable for use therewith**

(57) A reservoir (40) for a gravity feed spray gun comprises a container (41) and a removable lid (42) arranged to close an opening in the container (41) and provided with an outlet for transferring liquid from the reservoir (40) to an inlet of the spray gun during operation of the spray gun. A base of the container (41) is provided with an air hole (44) that can be closed when required. The reservoir (40) is provided with a filter (45) arranged to filter liquid withdrawn from the reservoir (40) through the outlet in the lid (42). The filter (45) may be located in the lid (42) and a range of filters (45) having different mesh sizes is provided for selection of a suitable mesh size. The lid (42) is detachable from the container (41) and may be releasably secured (41) by screw fit or push fit or by a screw-on collar.

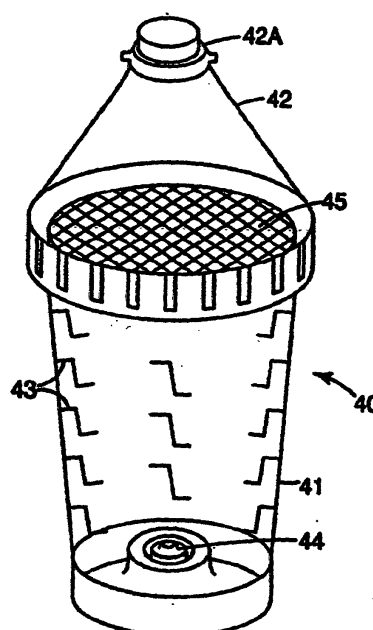


Fig. 15



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EUROPEAN SEARCH REPORT

Application Number
EP 04 00 2190

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)
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X	US 3 432 104 A (KALTENBACH THEODORE L) 11 March 1969 (1969-03-11) * column 2, line 5 - line 10 * * column 2, line 17 - line 21 * * column 2, line 64 - line 71; figure 3 *	1,2,5-9, 12,13, 18-23, 25,30,31	
X	DE 35 17 122 C (DAIMLER BENZ AG) 28 May 1986 (1986-05-28) * column 4, line 16 - line 46; figures *	18,24	
X	US 4 811 904 A (IHMELS HARTMUT ET AL) 14 March 1989 (1989-03-14) * column 5, line 29 - line 32; figures *	1,10	TECHNICAL FIELDS SEARCHED (Int.Cl.7) B05B
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A	US 1 843 269 A (CAPSER LEO W) 2 February 1932 (1932-02-02) * page 3, line 33 - line 45; figures 1,7,8,14 *	1,10,11	
A	DE 35 07 734 A (FROHNE NORBERT) 11 September 1986 (1986-09-11) * claim 1; figures *	16,17,32	
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 9 September 2004	Examiner Barré, V
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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</p>			

EPO FORM 1503 03.82 (P04C01)



European Patent
Office

Application Number

EP 04 00 2190

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☒ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- 1, 2, 5-13 16-25, 30-32
- ☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:



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**LACK OF UNITY OF INVENTION
SHEET B**

Application Number
EP 04 00 2190

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1, 2

The first invention discloses a liquid spraying apparatus comprising a gravity feed spray gun and a reservoir. The prior art document D1 (FR2631254) discloses an apparatus which has all the features of claim 1 (see also search report).

The STF (Special Technical Features) of the first invention are considered to be the features of claim 2:

-container made of translucent material
-markings

The problem solved thereby is how to assess what volume of liquid remains in the reservoir.

2. claims: 3, 4, 26-28

The second invention discloses a spray apparatus comprising a spray gun and a container with venting means.

Same prior art document D1 discloses all the features of claim 3 and of independent method claim 26.

Its STF are considered to be the features of claim 4: a valve mechanism or a flip top closure or a re-sealable strip of tape.

The problem solved by this feature is how to let air in the reservoir for providing a proper liquid flow while ensuring that the reservoir is sealed when not in use.

3. claims: 5-8, 18-25, 30

The third invention discloses a spray apparatus comprising a spray gun and a reservoir with a filter, or a gravity feed reservoir with a filter.

Its STF is considered to be a filter.

The problem solved by this feature is how to avoid impurities to enter the spray gun.

4. claims: 9-11

The fourth invention discloses a spray apparatus comprising a spray gun, a reservoir with a lid and securing means for attaching the lid to reservoir.

Its STF is considered to be: a screw fit lid

The problem solved thereby is considered to be how to fasten the lid to the container and how to seal the assembly.

5. claims: 12-13, 31



European Patent
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LACK OF UNITY OF INVENTION
SHEET B

Application Number
EP 04 00 2190

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

The fifth invention discloses a spray apparatus comprising a spray gun and a reservoir with connection means.
Its STF is considered to be: the outlet is shaped for attachment to the spray gun.
The problem solved thereby is considered to be how to connect the reservoir and the spray gun together.

6. claim: 14

The sixth invention discloses a spray apparatus comprising a spray gun, a reservoir with outlet sealing means.
Its STF is considered to be: means for sealing the reservoir when disconnected.
The problem solved thereby is considered to be how to prevent leakage when connecting/disconnecting the reservoir.

7. claim: 15

The seventh invention discloses a spray apparatus comprising a spray gun, a reservoir with disposable parts.
Its STF is considered to be: disposable container and/or lid.
The problem solved thereby is considered to be how to fasten the lid to the container and how to seal the assembly.

8. claims: 16, 17, 32

The eighth invention discloses a spray apparatus comprising a spray gun, a reservoir and a holder
Its STF is considered to be: a holder
The problem solved thereby is considered to be how to conveniently hold the reservoir for refill or for connection.

9. claim: 29

The ninth invention discloses a method for use of a spray apparatus comprising a spray gun and a reservoir.
Its STF is considered to be: the step of mixing added liquid to the reservoir
The problem solved thereby is considered to be how to provide a homogenous liquid composition.

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

EP 04 00 2190

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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

09-09-2004

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