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(54) **Improved mop assembly with liquid detergent supply**

(57) An improved mop assembly with liquid detergent supply has a detergent storage bottle connected between the mop and the handle of a mop, a pump installed inside the storage bottle, a sucking tube disposed at one end of the pump, and an outlet nozzle connected with the storage bottle disposed on the other end of the pump, so that the handle pushes the pump and compresses a spring to resume the pump into its original position. Such back and forth movement squeezes the liquid detergent out from the pump and sucks liquid detergent into the pump when the pump resumes its position, and thus spraying the detergent out from the outlet nozzle. By means of the handle directly driving the pump in the storage bottle for the back and forth squeezing, it gives the convenience of supplying detergent before mopping. Furthermore, the sectional handle, storage bottle, and mop are detachable to provide a convenient way for easily assembling and storage, and reducing the volume of packaging materials and lowering the transportation cost. Further, a n-shape contractible support rod is disposed each on both sides of the mop to fit mops of different specifications, and thus having the effect of expanding the applications.

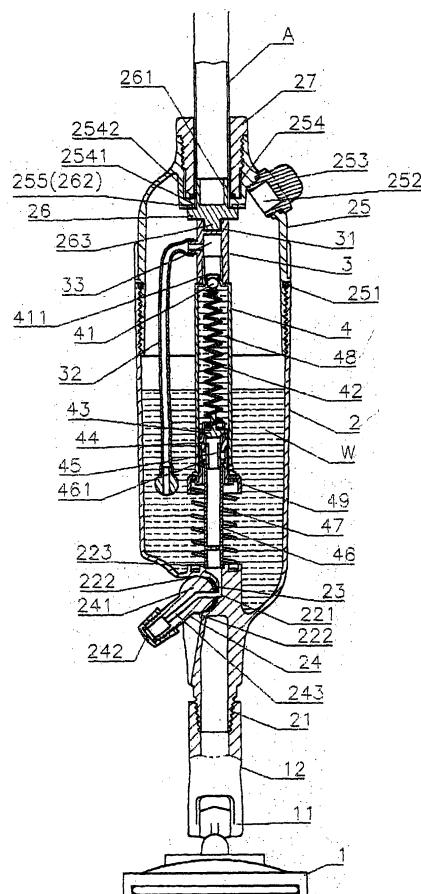


FIG. 1



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EUROPEAN SEARCH REPORT

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2003/035679 A1 (ZORZO BRUNO [IT]) 20 February 2003 (2003-02-20) * paragraphs [0047], [0050] - [0053] * -----	1	INV. A47L13/22
X	US 2001/006588 A1 (ZORZO BRUNO [IT]) 5 July 2001 (2001-07-05) * paragraphs [0046] - [0051] * -----	1	
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A	WO 01/72195 A (CLOROX CO [US]; HALL MICHAEL J [US]; RADER JAMES E [US]; ZHOU BOLI [US]) 4 October 2001 (2001-10-04) * the whole document * -----	1-7	
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A	WO 98/23200 A (PROCTER & GAMBLE [US]) 4 June 1998 (1998-06-04) * the whole document * -----	1-7	TECHNICAL FIELDS SEARCHED (IPC)
			A47L
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
Munich		19 February 2008	Bichi, Marco
CATEGORY OF CITED DOCUMENTS 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 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			

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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:
- ☒ 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:
- 1-7
- ☐ The present supplementary 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 (Rule 164 (1) EPC).



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: 1-7

mop assembly with liquid detergent supply, comprising essentially
 a mop,
 a storage bottle having an outlet nozzle
 a push member
 a handle connecting rod embedded into the sleeve of said push member;
 a curved pipe, having a limit groove for passing and limiting the limit member of said push member, and a suction pipe coupled to an appropriate position to connect a passage and a passage opening;
 a pump located between said push member and the bottom of said storage bottle; thereby the back and forth squeezing movement and the resuming movement of the handle sucking the liquid detergent from the suction pipe into the pump and then the piston in the pump squeezing the desired quantity of liquid detergent and spraying from the outlet nozzle

2. claims: 8-10

mop assembly comprising essentially
 a board body and a board surface including two n-shape contractible support rod,
 a board body, having a plurality of soft clipping boards for mounting a cleaning cloth.

3. claims: 11-13

mop assembly comprising essentially
 a storage bottle and a spray nozzle, coupled to an outlet nozzle set forward;
 a handle connecting pipe
 a control rod, set inside the handle connecting pipe
 a handle grip, comprised of two half-shape handle grips with a pivot set inside, pivotally coupled to a trigger
 a pusher member and a pump
 whereby the reciprocating actions of the control rod are triggered by the trigger of the handle to actuate the convenient and all-direction spray of cleaning agent through the outlet nozzle

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

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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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19-02-2008

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