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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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[Continued on next page]

(54) Title: CARPET CLEANING SYSTEM AND METHOD

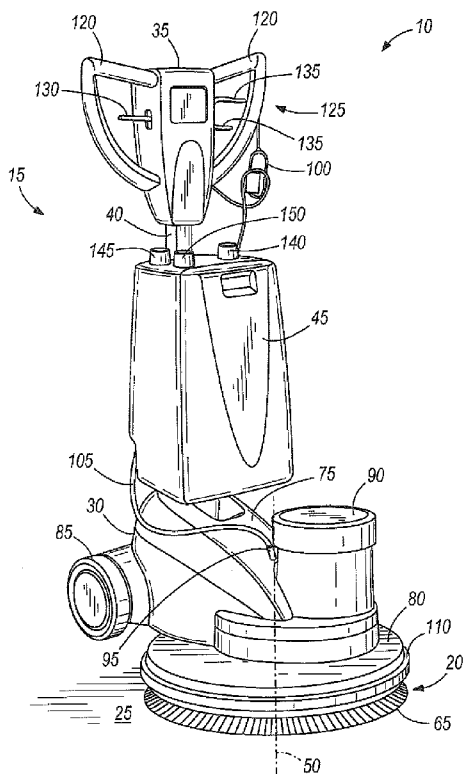


FIG. 1

(57) Abstract: A carpet cleaning system including a cleaning agent that is one of dilutable with and dissolvable in water to generate a cleaning solution. The cleaning system includes a brush disc that has a substantially bowl-shaped glide plate, and bristles disposed in a bristle region. The cleaning system further includes a carpet cleaning apparatus that has a reservoir for containing the cleaning solution, a motor, an aeration device, a power source, and a control system. The motor rotatably actuates the brush disc. The aeration device is fluidly coupled to the reservoir for aerating the cleaning solution to generate foam. The aeration device dispenses foam into at least one of the opening of the glide plate and the bristle region at a rate equivalent to between about 0.028 gallons per minute and about 0.042 gallons per minute.

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UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

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19 July 2012

**Published:**

— *with international search report (Art. 21(3))*

**A. CLASSIFICATION OF SUBJECT MATTER***A47L 11/34(2006.01)i, A47L 11/283(2006.01)i, A47L 11/162(2006.01)i*

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)

A47L 11/34; A47L 11/293; A47L 11/00; A47L 11/284; A47L 11/283

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

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) &amp; Keywords: carpet, cleaning, aeration, foam, brush, bristle

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	US 6367109 B1 (BESEL; ARLEN DALE et al.) 09 April 2002 See column 2, line 20 - column 5, line 13 and figures 1 - 4.	17, 18, 20-23, 25, 26 1-16, 19
X A	US 2004-0040102 A1 (BRUCE F. FIELD et al.) 04 March 2004 See page 2, paragraph [0029] - page 6, paragraph [0065] and figures 1 - 21.	17, 18, 20-23, 25, 26 1-16, 19
X A	US 05813086 A (UENO; SABURO et al.) 29 September 1998 See column 4, line 51 - column 8, line 37 and figures 1 - 6.	17, 18, 20-23, 25, 26 1-16, 19
A	US 2006-0143843 A1 (MARK BENEDICT) 06 July 2006 See page 1, paragraph [0017] - page 5, paragraph [0052] and figures 1 - 10.	1-23, 25, 26

 Further documents are listed in the continuation of Box C. See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;" document member of the same patent family

Date of the actual completion of the international search

25 MAY 2012 (25.05.2012)

Date of mailing of the international search report

**29 MAY 2012 (29.05.2012)**

Name and mailing address of the ISA/KR

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**Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.: 24  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:  
  
Claim 24 describes "The carpet cleaning system of claim 17, wherein the glide plate ~" but there is not "the glide plate" in claim 17. Accordingly, claim 24 is unclear.
  
3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:

1.  As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
  
2.  As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
  
3.  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  
  
  
  
  
  
  
  
  
  
4.  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

**Remark on Protest**

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

**PCT/US2011/056742**

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Information on patent family members

International application No.

**PCT/US2011/056742**

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