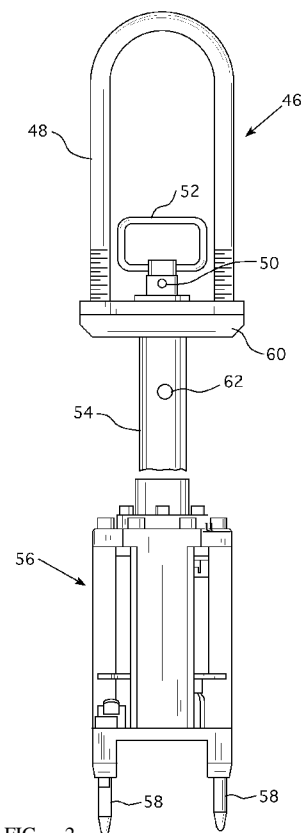




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- (71) Applicant: WESTINGHOUSE ELECTRIC COMPANY LLC [US/US]; 1000 Westinghouse Drive, Suite 141, Cranberry Township, PA 16066 (US).
- (72) Inventors: KAUFMANN, Adam, B.; 511 Beatty Road, Monroeville, PA 15146 (US). STEFKO, David J.; 104 Skyview Drive, Jeannette, PA 15644 (US).
- (74) Agents: COLDREN, Richard, J. et al; Westinghouse Electric Company Lie, 1000 Westinghouse Drive, Suite 141, Cranberry Township, PA 16066 (US).
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[Continued on nextpage]

(54) Title: NUCLEAR FUEL ASSEMBLY HANDLING APPARATUS



(57) Abstract: A fuel assembly handling tool that can be lowered onto the top nozzle of a fuel assembly, positively latch the top nozzle, unlatch from the top nozzle, and be raised off the top nozzle of the fuel assembly. The tool head, that interfaces with the top nozzle has load bearing grippers that latch onto the fuel assembly, that are located in a storage position up within the tool while the tool is lowered onto the fuel assembly. The gripper fingers are then lowered into position during the latching process, and are raised back to the storage position during the unlatching process. In the storage position, the gripping fingers are spaced above the fuel assembly top nozzle when the tool head is resting on the nozzle.

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(84) Designated States (unless otherwise indicated, for every *Mnd of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, 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, KM, ML, MR, NE, SN, TD, TG).

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- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(Hi))*

Published:

- *with international search report (Art. 21(3))*
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2013/074052**A. CLASSIFICATION OF SUBJECT MATTER****G21C 19/18(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)

G21C 19/18; G21C 19/26; G21C 19/19; G21C 19/00; G21C 3/30; B25J 15/08

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 modelsElectronic data base consulted during the international search (name of data base and, where practicable, search terms used)
eKOMPASS(KIPO internal) & keywords: fuel, handling tool, bail, gripper, finger, withdraw, retract**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 3105739 B2 (MITSUBISHI HEAVY IND. LTD.) 06 November 2000 See abst ract , paragraph [0011] and figure 6.	1-8
A	JP 09-085664 A (MITSUBISHI HEAVY IND. LTD.) 31 March 1997 See abst ract , paragraph [0006] and figures 1-6	1-8
A	US 7386087 B2 (PATRICE JUBLOT) 10 June 2008 See abst ract , column 10, lines 17-41 and figure 9.	1-8
A	US 4572817 A (BERNARD L. SILVERBLATT) 25 February 1986 See abst ract , column 3, lines 34-50 and figure 2.	1-8
A	JP 08-271683 A (NUCLEAR FUEL IND. LTD.) 18 October 1996 See abst ract , paragraphs [0027]- [0029] and figure 4.	1-8

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

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"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

"&" document member of the same patent family


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International Application Division
Korean Intellectual Property Office
189 Cheongsu-ro, Seo-gu, Daejeon Metropolitan City, 302-701,
Republic of Korea
Facsimile No. +82-42-472-7140

Authorized officer

PARK, Hye Lyun

Telephone No. +82-42-481-3463



INTERNATIONAL SEARCH REPORT

Information on patent family members

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