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25 Cheliabinskaya Street, Bldg. 1, Apt.84, Moscow, 105568 (RU). **PEGAZ, David** [IL/IL]; 1 E. Mohl Street, Apt.14, 42540 Netanya (IL).

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(74) Agents: **LUZZATTO, Kfir** et al.; P.O. Box 5352, 84152 Beer Sheva (IL).

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(71) Applicant (for all designated States except US): **E.E.R. ENVIRONMENTAL ENERGY RESOURCES (ISRAEL) LTD.** [IL/IL]; 12 Hachilazon Street, 52522 Ramat-gan (IL).

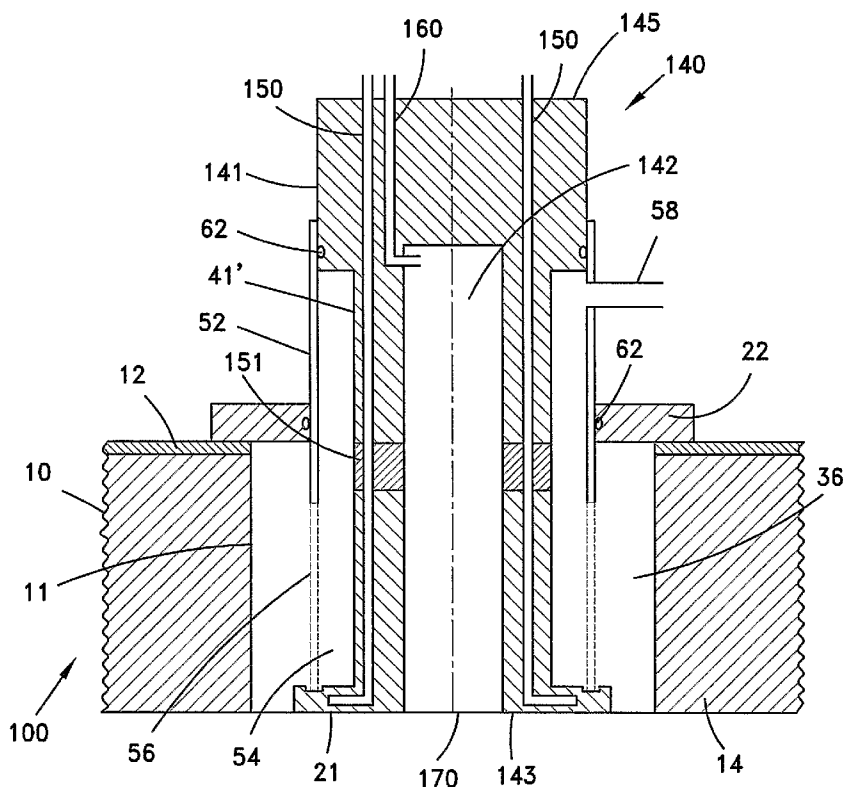
(72) Inventors; and

(75) Inventors/Applicants (for US only): **GNEDENKO, Valeri G.** [RU/RU]; 19 Berzarin Street, Bldg. 1, Apt. 201, Moscow, 123585 (RU). **SURIS, Alexander L.** [RU/RU];

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(54) Title: AN IMPROVED PLASMA TORCH FOR USE IN A WASTE PROCESSING CHAMBER



(57) Abstract: The invention is a plasma torch for insertion through an opening in the wall of a waste processing chamber. The plasma torch of the invention is characterized by comprising a coaxial sleeve having an upper end and a lower end. The sleeve surrounds at least the portion of the outer surface of the torch that is located in the opening, thereby forming an insulating chamber between the outer surface of the torch and the inner surface of the sleeve. At least a portion of the portion of the coaxial sleeve that surrounds at least the portion of the outer surface of the torch that is located in the opening in the wall of the processing chamber is porous or permeable to a heat exchanging fluid. The torch comprises an inlet for introducing the heat exchanging fluid into the insulating chamber. When the plasma torch is inserted through the opening, a gap exists between the processing chamber wall and the coaxial sleeve. Thus the coaxial sleeve and the insulating

chamber shield the outer surface of the plasma torch from a significant amount of the heat that radiates from the processing chamber wall and from inside the processing chamber and the heat exchanging fluid that flows through the inlet exits the insulating chamber into the processing chamber.

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