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U.S. DEPARTMENT OF COMMERCE
U.S. Patent and Trademark Office
Atty Docket No.: SHI 19.277

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To the Honorable Commissioner of Patents and Trademarks: Please record the attached original documents or copy thereof.

1. Name of conveying party(ies):
Ralph C. LONGSWORTH

7-2-04
Additional name(s) of conveying party(ies) attached? Yes No

2. Name and address of receiving party(ies)
Name: 1) SHI-APD CRYOGENICS, INC.
Internal Address: 1833 Vultee Street
Allentown, PA 18103

2) SUMITOMO HEAVY INDUSTRIES, LTD.
Street Address: 9-11, Kitashinagawa
5-chome, Shinagawa-ku
City: Tokyo State: Zip: 141-8686
Country: Japan
Additional name(s) & address(es) attached? Yes No

3. Nature of conveyance:
 Assignment Merger
 Security Agreement Change of Name
 Other

Execution Date: June 17, 2004

4. Application number(s) or patent number(s):
If this document is being filed together with a new application, the execution date of the application is: June 17, 2004
A. Patent Application No.(s) B. Patent No.(s)
Additional numbers attached? Yes No

5. Name and address of party to whom correspondence concerning document should be mailed:
Name: Katten Muchin Zavis Rosenman
Internal Address: IP Department 15th Fl.

07/12/2004 SHIAPD 00000124 501290 10500783
02 FC:8021 40.00 DA
Street Address: 575 Madison Avenue
City: New York State: New York Zip: 10022-2585

6. Total number of applications and patents involved: 1
7. Total fee (37 CFR 3.41).....\$ 40.00
 Enclosed
 Authorized to be charged to deposit account
8. Deposit account number:
50-1290
(Attach duplicate copy of this page if paying by deposit account)

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9. Statement and signature.
To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.
Name of Person Signing: Samson Helfgott
Signature:
Date: July 2, 2004

Total number of pages including cover sheet, attachments, and documents: 2

Mail documents to be recorded with required cover sheet information to:
Commissioner of Patents & Trademarks, Box Assignments
Washington, D.C. 20231

ASSIGNMENT

Docket No. SHI 19.277

WHEREAS, the below named inventor, ASSIGNOR, has made a certain new and useful invention in: Integral Pulse Tube Refrigerator and Cryopump

for which

an application for a Patent of the United States was filed on _____
and given Application Serial No. _____

and WHEREAS, SHI-APD CRYOGENICS, INC. & SUMITOMO HEAVY INDUSTRIES, LTD.

having a place of business at 1833 Vultee Street Allentown, PA 18103 &
9-11, Kitashinagawa 5-chome, Shinagawa-ku, Tokyo 141-8686 Japan ASSIGNEE

is desirous of obtaining the entire right, title and interest in, to and under the said invention and the said application.

NOW, THEREFORE, in consideration of the sum of One Dollar (\$1.00) to me in hand paid, and other good and valuable consideration, the receipt of which is hereby acknowledged, the said ASSIGNOR has sold, assigned, transferred and set over, and by these presents does hereby sell, assign, transfer and set over, unto the said ASSIGNEE, its successors, legal representatives and assigns, the entire right, title and interest in, to and under the said invention, and the said United States application and all divisions, renewals and continuations thereof, and all Patents of the United States which may be granted thereon and all reissues and extensions thereof; and all applications for industrial property protection, including, without limitation, all applications for patents, utility models, and designs which may hereafter be filed for said invention in any country or countries foreign to the United States, together with the right to file such applications and the right to claim for the same the priority rights derived from said United States application under the Patent Laws of the United States, the International Convention for the Protection of Industrial Property, or any other international agreement or the domestic laws of the country in which any such application is filed, as may be applicable; and all forms of industrial property protection, including, without limitation, patents, utility models, inventor's certificates and designs which may be granted for said invention in any country or countries foreign to the United States and all extensions, renewals and reissues thereof;

ASSIGNOR authorizes and requests the Commissioner of Patents and Trademarks of the United States, and any Official of any country or countries foreign to the United States, whose duty it is to issue patents or other evidence or forms of industrial property protection on applications as aforesaid, to issue the same to the said ASSIGNEE, its successors, legal representatives and assigns, in accordance with the terms of this instrument; and

ASSIGNOR covenants and agrees that he has full right to convey the entire interest herein assigned, and has not executed, and will not execute, any agreement in conflict herewith; and

ASSIGNOR further covenants and agrees that he will communicate to the said ASSIGNEE, its successors, legal representatives and assigns, any facts known respecting said invention, and testify in any legal proceeding, sign all lawful papers, execute all divisional, continuing, reissue and foreign applications, make all rightful oaths, and generally do everything possible to aid the said ASSIGNEE, its successors, legal representatives and assigns, to obtain and enforce proper protection for said invention in all countries.

Full name of sole or first inventor Ralph C. LONGSWORTH
Inventor's Signature *Ralph C Longsworth* Date 6/17/04
Residence Allentown, PA Citizenship United States of America
Post Office Address 1833 Vultee Street
Allentown, PA 18103

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