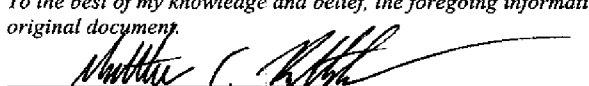


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				Attorney Docket No. <u>146150</u>	
Please record the attached document. Total number of pages including cover sheet, attachments, and document: <u>3</u>					
1. A. Name of conveying parties: 1.) Simon Edward BRAY 2.) Michael David ROWLSON B. Additional name(s) of conveying party(ies) attached? <input type="checkbox"/> Yes <input type="checkbox"/> No			2. A. Name and address of receiving party: ROLLS-ROYCE PLC 65 BUCKINGHAM GATE LONDON, SW1E 6AT, GREAT BRITAIN B. Additional name(s) & address(es) attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
3. A. Nature of conveyance: <input checked="" type="checkbox"/> Assignment <input type="checkbox"/> Merger <input type="checkbox"/> Security Agreement <input type="checkbox"/> Change of Name <input type="checkbox"/> Other _____ B. Execution Date: <u>1.) 07/01/10; 2.) 06/14/10</u>					
4. A. Patent Application No. <u>12/835,182</u> B. Patent No.(s) Additional numbers attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No C. Title of Application: <u>A METHOD OF FRICTION WELDING</u>					
5. Name and address of party to whom correspondence concerning document should be mailed: Name: <u>James A. Oliff</u> Address: OLIFF & BERRIDGE, PLC P.O. Box 320850 Alexandria, VA 22320-4850 Phone Number: 703-836-6400 Fax Number: 703-836-2787			6. Total number of applications and patents involved: <u>1</u> 7. Please charge Deposit Account No. 15-0461 the total fee (37 CFR 3.41) in the amount of <u>\$40.00</u> . 8. Credit any overpayment or charge any underpayment to deposit account number 15-0461.		
9. Statement and signature. <i>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.</i> <div style="display: flex; justify-content: space-between; align-items: flex-end;"> <div style="text-align: center;">  James A. Oliff, Registration No. 27,075 Matthew C. Barthalow, Registration No. 60,323 </div> <div style="text-align: right;"> Date: <u>July 13, 2010</u> </div> </div>					

CH \$40.00 150461 12835182

ASSIGNMENT

(1-8) Insert Name(s) of Inventor(s)

(1) SEMON EDWARD BRAY (5) _____

(2) MICHAEL DAVID ROWLSON (6) _____

(3) _____ (7) _____

(4) _____ (8) _____

In consideration of the sum of one dollar (\$1.00) and other good and valuable consideration paid to each of the undersigned, each undersigned agrees to assign, and hereby does assign, transfer and set over to

(9) Insert Name of Assignee (9) ROLLS-ROYCE PLC

(10) Insert Address of Assignee (10) 65 BUCKINGHAM GATE, LONDON, SW1E 6AT, GREAT BRITAIN

(hereinafter designated as the Assignee) and Assignee's heirs, successors, assigns and legal representatives, the entire right, title and interest for the United States of America as defined in 35 U.S.C. §100, in the invention, and in all applications for patent including any and all provisional, non-provisional, divisional, continuation, international, confirmation, substitute and reissue application(s), and all Letters Patent, extensions, reissues and reexamination certificates that may be granted on the invention known as

(11) Insert Identification such as Title, Case Number, or Foreign Application Number (11) A METHOD OF FRICTION WELDING

4405 TAL

(Attorney Docket No. 146150)

for which the undersigned has (have) executed an application for patent in the United States of America on even date herewith or

(12) Insert Date of Signing of Application (12) on _____

(13) Alternative Identification for filed applications (13) U.S. application Serial Number 12/835,182

filed July 13, 2010

1) Each undersigned agrees to execute all papers necessary in connection with any application and any continuing, divisional or reissue applications for the invention, and any patent(s) issuing thereon, and also to execute separate assignments in connection with such applications and patents as the Assignee may deem necessary.

2) Each undersigned agrees to execute all papers necessary in connection with any interference which may be declared concerning any application or continuation or division thereof, or any patent or reissue application based thereon, for the invention, and to cooperate with the Assignee in every way possible in obtaining evidence and going forward with such interference.

3) Each undersigned agrees to execute all papers and documents and perform any act which may be necessary in connection with claims or provisions of the International Convention for Protection of Industrial Property or similar agreements.

4) Each undersigned agrees to perform all affirmative acts which may be necessary to obtain, maintain or confirm by reissue or reexamination a grant of a valid United States patent to the Assignee.

5) Each undersigned authorizes and requests the Commissioner of the U.S. Patent and Trademark Office to issue any and all Letters Patents of the United States resulting from said application(s) to the said Assignee, as Assignee of the entire interest, and covenants that he has full right to convey the entire interest herein assigned, and that he has not executed, and will not execute, any agreements in conflict herewith, and agrees that this assignment is binding on him and his heirs, successors, assigns and legal representatives.

6) Each undersigned hereby grants the firm of OLIFF & BERRIDGE, PLC the power to insert on this assignment any further identification that may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document.

In witness whereof, executed by the undersigned on the date(s) opposite the undersigned name(s).

Date	<u>1/7/10</u>	Inventor Signature	<u>Simon E. Bray</u>	(SEAL)
Date	_____	Inventor Signature	<u>Michael David Rowlson</u>	(SEAL)
Date	_____	Inventor Signature	_____	(SEAL)
Date	_____	Inventor Signature	_____	(SEAL)
Date	_____	Inventor Signature	_____	(SEAL)
Date	_____	Inventor Signature	_____	(SEAL)
Date	_____	Inventor Signature	_____	(SEAL)
Date	_____	Inventor Signature	_____	(SEAL)

This assignment should preferably be signed before: (a) a Notary Public if within the U.S.A. (b) a U.S. Consul if outside the U.S.A. If neither, then it should be signed before at least two witnesses who also sign here:

Date 01/07/2010 Witness [Signature]

Date 01/07/2010 Witness [Signature]

ASSIGNMENT

(1-8) Insert Name(s) of Inventor(s)

(1) SIMON EDWARD BRAY (5) _____

(2) MICHAEL DAVID ROWLSON (6) _____

(3) _____ (7) _____

(4) _____ (8) _____

In consideration of the sum of one dollar (\$1.00) and other good and valuable consideration paid to each of the undersigned, each undersigned agrees to assign, and hereby does assign, transfer and set over to

(9) Insert Name of Assignee (9) ROLLS-ROYCE PLC

(10) Insert Address of Assignee (10) 65 BUCKINGHAM GATE, LONDON, SW1E 6AT, GREAT BRITAIN
(hereinafter designated as the Assignee) and Assignee's heirs, successors, assigns and legal representatives, the entire right, title and interest for the United States of America as defined in 35 U.S.C. §100, in the invention, and in all applications for patent including any and all provisional, non-provisional, divisional, continuation, international, confirmation, substitute and reissue application(s), and all Letters Patent, extensions, reissues and reexamination certificates that may be granted on the invention known as

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4405 TAL
(Attorney Docket No. 146150))
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6) Each undersigned hereby grants the firm of OLIFF & BERRIDGE, PLC the power to insert on this assignment any further identification that may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document.

In witness whereof, executed by the undersigned on the date(s) opposite the undersigned name(s).

Date _____	Inventor Signature _____	(SEAL)
Date <u>14 June 2010</u>	Inventor Signature <u>Michael David Rowlson</u>	(SEAL)
Date _____	Inventor Signature _____	(SEAL)
Date _____	Inventor Signature _____	(SEAL)
Date _____	Inventor Signature _____	(SEAL)
Date _____	Inventor Signature _____	(SEAL)
Date _____	Inventor Signature _____	(SEAL)
Date _____	Inventor Signature _____	(SEAL)

This assignment should preferably be signed before: (a) a Notary Public in the U.S.A. (b) a U.S. Consul if outside the U.S.A. If neither, then it should be signed before at least two witnesses who also sign here:

Date <u>14 June 2010</u>	Witness <u>Robert Smith</u>
Date <u>14 June 2010</u>	Witness <u>Clare Grant</u>