

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
Stylesheet Version v1.2

EPAS ID: PAT5972251

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
DYNAENERGETICS GMBH & CO. KG	12/20/2019
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	DYNAENERGETICS EUROPE GMBH
<b>Street Address:</b>	KAISERSTRASSE 3
<b>City:</b>	TROISDORF
<b>State/Country:</b>	GERMANY
<b>Postal Code:</b>	53840
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	16640372
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(866)250-1636
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<b>Address Line 2:</b>	SUITE 428
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<b>ATTORNEY DOCKET NUMBER:</b>	DMC034US_DYNADE_TO_DYNAEP
<b>NAME OF SUBMITTER:</b>	JANELLE A. O'NEILL
<b>SIGNATURE:</b>	/Janelle A. O'Neill/
<b>DATE SIGNED:</b>	02/20/2020
<b>Total Attachments: 22</b>	
source=Worldwide Dyna Patent Assignment to Dyna GmbH_23Dec19#page1.tif	
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ASSIGNMENT

This Assignment is from DynaEnergetics GmbH & Co. KG, (the "Assignor"), having its primary place of business at Kaiserstrasse 3, Troisdorf 53840, Germany, to DynaEnergetics Europe GmbH, (the "Assignee"), having its primary place of business at Kaiserstrasse 3, Troisdorf 53840, Germany.

WHEREAS, Assignor owns all legal title in and to the inventions and improvements as shown in Schedule A, (the "IP Rights"), which is incorporated by reference herein in its entirety;

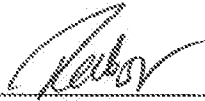
WHEREAS, Assignor is dissolving its business according to German laws by January 1, 2020 (the "Effective Date"), and Assignee is the successor-in-interest, (as understood in its broadest general terms), for all assets, including IP Rights, of Assignor; and

WHEREAS, Assignor intends to effectively transfer and assign all right, title and interest to all such IP Rights, and Assignee intends to accept all such IP Rights, obligations and duties related thereto, as set forth below.

NOW THEREFORE, for good and valuable consideration, Assignor hereby assigns and transfers to Assignee, its successors and assigns, all right, title and interest in and to the IP Rights made or conceived by employees or others having an obligation to assign to Assignor as of the Effective Date, (and Assignor expressly authorizes its counsel to supplement Schedule A with any additional inventions and improvements filed in the name of Assignor or otherwise indicating Assignor as Applicant, prior to the Effective Date), and any and all applications for patent and patents therefrom in any and all countries, including all divisionals, continuations, continuations-in-part, reexaminations, renewals and reissues thereof, and all rights of priority resulting from the filing of the application(s), and authorize and request any official whose duty it is to issue any patent on the inventions and improvements resulting therefrom to the Assignee, or its successors or assigns.

IN TESTIMONY WHEREOF, this Assignment is executed below on behalf of DynaEnergetics GmbH & Co. KG, and accepted by DynaEnergetics Europe GmbH.


**DynaEnergetics GmbH & Co. KG**

By:  .....

NAME: Achim Pabst  
TITLE: Managing Director  
DATE: 20.12.2019


Assignee accepts the assignment of all of Assignor's right, title and interest in the IP Rights and assumes all of Assignor's duties and obligations thereof as of January 1, 2020.

**DynaEnergetics Europe GmbH**

By:  .....

NAME: Achim Pabst  
TITLE: Managing Director  
DATE: 20.12.2019

**SUBSCRIBED AND SWORN TO BEFORE ME** by the said Achim Pabst, on behalf of Assignor and Assignee, on this 20 day of December 2019

  
.....  
Notary

SCHEDULE A

Country	MIP Reference	Application Num	Filing Date	Patent Num	Issue Date	Title	Status
African Intellectual Property Organization	DMC0270A	1201800425	10/31/18			HIGH TEMPERATURE INITIATOR	Pending
Argentina	DMC002AR	AR044072A1	4/23/04	AR044072B1	11/18/2009	FOR DETONATING CORDS FOR X-RAY COMPONENTS AND SYSTEM	Issued
Argentina	DMC007AR	20140102653	7/17/14			COMPONENTS AND SYSTEM	Published
Argentina	DMC007ARDiv	20190101834	7/1/19			COMPONENTS AND SYSTEM	Pending
Argentina	DMC009AR	20140103158	8/22/14			PERFORATING GUN AND DETONATOR ASSEMBLY	Published
Argentina	DMC009ARDiv	20190101835	7/1/19			PERFORATING GUN AND DETONATOR ASSEMBLY	Pending
Argentina	DMC013AR	20140103159	8/22/14	AR097425B1	7/31/2019	TRANSFERENCIA BALÓSTICA	Issued
Argentina	DMC014AR	20150100685	3/6/15			FOR POSITIONING A DETONATOR WITHIN A PERFORATING GUN	Published
Argentina	DMC014ARDiv	20190102834	10/4/19			POSITIONING DEVICE	Pending
Argentina	DMC024AR	20170102706	9/29/17			CIRCUIT AND METHOD FOR USE	Published
Argentina	DMC037AR	20190101563	6/7/19			CONDUCTIVE DETONATING CORD FOR PERFORATING GUN	Pending
Argentina	DMC044AR	20190103222	11/5/19			FUSE	Pending

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Argentina	DMC049AR	20190101104	4/26/19			DETONATION ACTIVATED WIRELINE RELEASE TOOL	Pending
Argentina	DMC050AR	20190101833	7/1/19			FOR SHAPED CHARGES IN A PERFORATING GUN	Pending
Argentina	DMC501AR	20190102833	10/4/19			FOR MARKER INCLUSION IN A WELLBORE	Pending
Argentina	DMC505AR	20190102788	10/2/19			DRONE STRING FOR DOWNHOLE OIL AND GAS WELLBORE	Pending
Argentina	DMC507AR	20190103429	11/22/19			SYSTEM AND METHOD	Pending
Argentina	DMC513AR	20190103081	10/25/19			PERFORATING DRONE	Pending
Australia	DMC011AU	2012241879	10/17/13	2012241879	2/9/2017	MULTIFUNCTIONAL	Issued
Australia	DMC033AU					METHOD OF MAKING SAME, AND SHAPED CHARGE	Unfiled
Australia	DMC047AU	2019200724	2/4/19			HOLDER FOR AN INITIATOR SYSTEM	Pending
Brazil	DMC007BR	BR1120150330100	12/30/15			COMPONENTS AND SYSTEM	Pending
Brazil	DMC012BR	1120150064752	3/24/15			PERFURAVO E SISTEMA DE PISTOLA DE	Pending
Brazil	DMC027BR	BR1120180724653	3/2/17			INITIATOR	Pending
Brazil	DMC032BR	112019015882-0	3/12/18			SELF-CONTAINED AND COMPRESSED EXPLOSIVE	Pending
Brazil	DMC033BR	BR 11 2019 025246-6	6/1/18			METHOD OF MAKING SAME, AND SHAPED	Pending
Canada	DMC006CA	2590045	12/6/05	2590045	6/19/2012	OF IGNITION IN PERFORATION SYSTEMS	Issued
Canada	DMC007CA1	2821506	7/18/13			COMPONENTS AND SYSTEM	Allowed

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Canada	DMC007CADiv1							COMPONENTS AND SYSTEM WITH A HOLDING SYSTEM FOR HOLLOW CHARGES FOR A MODULE	Unfiled
Canada	DMC012CA	2886310	3/26/15					FOR POSITIONING A DETONATOR WITHIN A PERFORATING GUN	Pending
Canada	DMC013CA	2921088	2/11/16					INITIATION FOR NON-AXISYMMETRIC SHAPED	Pending
Canada	DMC014CA	2941648	9/2/16					INITIATION FOR NON-AXISYMMETRIC SHAPED	Allowed
Canada	DMC022CA	2995139	2/8/18					INITIATION FOR NON-AXISYMMETRIC SHAPED HAVING A PIVOTABLE ELECTRIC CONTACT COMPONENT AND	Unfiled
Canada	DMC022CADiv							HAVING A PIVOTABLE ELECTRIC CONTACT COMPONENT AND	Issued
Canada	DMC023 21CA	2923860	3/15/16	2923860			1/15/2019	HAVING A PIVOTABLE ELECTRIC CONTACT COMPONENT AND	Pending
Canada	DMC023 21CADiv1	3015102	8/23/18					FOAM PACKAGE	Pending
Canada	DMC025CA	3006230	5/24/18					METHOD OF MAKING SAME, AND SHAPED	Pending
Canada	DMC026CA1	3048505	12/15/17					UNDERBALANCE	Pending
Canada	DMC028CA	3024982	11/22/18					INITIATED SAFETY FIRING HEAD, WELL	Pending
Canada	DMC030CA	3058827	4/13/18					STRUCTURE WITH INTEGRATED SELECTIVE ELECTRONIC SWITCH CIRCUITRY, PRESSURE-ISOLATING ENCLOSURE	Pending

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Canada	DMC032CA	3056964	3/12/18				SELF-CONTAINED AND COMPRESSED EXPLOSIVE	Pending
Canada	DMC033CA		12/16/19				METHOD OF MAKING SAME, AND SHAPED	Pending
Canada	DMC049CA	3040548	4/18/19				DETONATION ACTIVATED WIRELINE RELEASE TOOL	Pending
China	DMC007CN	201480040456.9	1/15/16	ZL20148004 0456.9	9/7/2018		COMPONENTS AND SYSTEM	Issued
China	DMC009CN	201480047092.7	2/25/16	ZL20148004 7092.7	10/2/2018		PERFORATING GUN AND DETONATOR ASSEMBLY	Issued
China	DMC009CNDiv	201811156092.7	9/30/18				PERFORATING GUN AND DETONATOR ASSEMBLY	Published
China	DMC013CN	201480047088	2/25/16	105492720	10/30/2018		MODULE	Issued
China	DMC014CN	201580011132.7	8/29/16	ZL20158001 1132.7	5/14/2019		FOR POSITIONING A DETONATOR WITHIN A PERFORATING GUN	Issued
China	DMC021CN	201610153426.X	3/17/16				HAVING A PIVOTABLE ELECTRIC CONTACT	Published
China	DMC024CN	201780082132.50	7/31/17				CIRCUIT AND METHOD FOR USE	Published
China	DMC027CN	201780025618.5	3/2/17				INITIATOR	Published
China	DMC030CN	201880025701.7	4/13/18				STRUCTURE WITH INTEGRATED SELECTIVE ELECTRONIC SWITCH CIRCUITRY, PRESSURE-ISOLATING ENCLOSURE CONTAINING SUCH	Published
China	DMC033CN		12/18/19				METHOD OF MAKING SAME, AND SHAPED	Pending
Czech Republic	DMC009CZ	PV2016-130	3/5/16	307065	11/15/2017		PERFORATING GUN AND DETONATOR ASSEMBLY	Issued

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Czech Republic	DMC011CZ	EP2697597		3/1/17	2697597	3/1/2017	MULTIFUNCTIONAL PLUG	Issued
Czech Republic	DMC024CZ	2019549		2/5/17			CIRCUIT AND METHOD FOR USE WITH A HOLDING SYSTEM FOR HOLLOW CHARGES FOR A	Pending
Denmark	DMC012DK	13774155.9		10/8/13	DK/EP 2904195	12/5/2018	MULTIFUNCTIONAL PLUG	Issued
European Patent Office	DMC011EP	12715667.7		11/5/13	2697597	3/1/2017	WITH A HOLDING SYSTEM FOR HOLLOW CHARGES FOR A	Issued
European Patent Office	DMC012EP	13774155.9		10/8/13	2904195	12/5/2018	INITIATOR HEAD ASSEMBLY	Issued
European Patent Office	DMC015EP	EP20150721178.0		10/20/16			INITIATION FOR NON-AXISYMMETRIC SHAPED	Published
European Patent Office	DMC022EP	16756650.4		3/5/18			SHAPED CHARGE METAL FOAM PACKAGE	Allowed
European Patent Office	DMC025EP	16791409.2		11/7/16			METHOD OF MAKING SAME, AND SHAPED	Published
European Patent Office	DMC026EP1	17828873.4		12/15/17			AND SHAPED CHARGE INCORPORATING SAME	Published
European Patent Office	DMC026EP2	17835626.7		12/15/17			STRUCTURE WITH INTEGRATED SELECTIVE ELECTRONIC SWITCH CIRCUITRY, PRESSURE-ISOLATING ENCLOSURE	Pending
European Patent Office	DMC030EP	18722910.9		4/13/18			SELF-CONTAINED AND COMPRESSED EXPLOSIVE	Pending
European Patent Office	DMC032EP	18711085.3		3/12/18			METHOD OF MAKING SAME, AND SHAPED	Unfiled
European Patent Office	DMC033EP	18728632.3						

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SCHEDULE A

Germany	DMC011DEEP	50 2012 009 639.1	3/1/17	2697597	3/1/2017	MULTIFUNCTIONAL	Issued
Germany	DMC012DEUM	202013012755.4	2/27/19	55	3/8/2019	FRAC PAC GUN SYSTEM	Issued
Germany	DMC041DE	102018133414.1	12/21/18			CHARGES	Pending
Germany	DMC044DE	102018129985	11/27/18			ELECTRONIC TIME DELAY FUSE	Pending
Germany	DMC047DE	102019101497.2	1/22/19			SHAPED CHARGE AND DETONATOR	Pending
Germany	DMC052DE	102019113321.1	5/20/19			TOOL FOR ACTUATING A	Pending
Germany	DMC054DE	102019120338.4	7/26/19			TOOL IN A WELLBORE PERFORATING GUN	Pending
Germany	DMC056DE	102019121251	8/6/19			CHARGE APPARATUS FOR OPTIMIZED	Pending
Germany	DMC057DE	102019110328.2	4/18/19			PERFORATING GUN ASSEMBLY AND	Pending
Germany	DMC059DE	102019115201.1	6/5/19			POWER CHARGE FOR A WELLBORE TOOL	Pending
Germany	DMC060DE	102019130094	11/7/19			CARRIER WITH INTEGRATED	Pending
Germany	DMC062DE	102019127174.6	10/9/19			INITIATOR	Pending
Germany	DMC07DE	102019112164.7	5/9/19			SYSTEM AND METHOD	Pending
Germany	DMC08DE	102019121593.5	8/9/19			SYSTEM AND METHOD	Pending
Germany	DMC511DE	102019120542.5	7/30/19			SYSTEM AND METHOD FOR NAVIGATING A	Pending
Germany	DMC512DE	102019110326.6	4/18/19			WELLBORE AND DETERMINING	Pending
Germany	DMC513DE	102019106829	3/18/19			PERFORATING DRONE	Pending
Germany	DMC516DE	102019133784	12/10/19			DELIVERY SYSTEM	Pending
India	DMC007IN	201647004496	2/9/16			COMPONENTS AND CIRCUIT AND METHOD	Pending
India	DMC024IN	2.01947E+11	7/31/17			FOR USE	Published
India	DMC027IN	201847040667	10/29/18			INITIATOR	Pending

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Malaysia	DMC032MY	PI2019005683	3/12/18				SELF-CONTAINED AND COMPRESSED EXPLOSIVE	Pending
Mexico	DMC024MX	MX/a/2019/009240	8/2/19				CIRCUIT AND METHOD FOR USE	Published
Mexico	DMC033MX	MX/a/2019/015205	12/13/19				METHOD OF MAKING SAME, AND SHAPED	Pending
Netherlands	DMC012NL	13774155.9	10/8/13				WITH A HOLDING SYSTEM FOR HOLLOW CHARGES FOR A	Allowed
Norway	DMC003NO	20061842	9/22/04	336706	10/26/2015		med selvlukkende perforingshull	Issued
Norway	DMC007NO	20160017	1/6/16	342360	5/14/2018		COMPONENTS AND SYSTEM	Issued
Norway	DMC007NODiv1	20171759	11/7/17				COMPONENTS AND SYSTEM	Pending
Norway	DMC007NODiv2	20180507	4/13/18				COMPONENTS AND SYSTEM	Pending
Norway	DMC012NO	13774155.9	10/8/13	2904195	11/2/2018		WITH A HOLDING SYSTEM FOR HOLLOW CHARGES FOR A	Issued
Norway	DMC027NO	20181575	3/2/17				INITIATOR	Pending
Papua New Guinea	DMC047PNG	PG/P/2019/0008	2/6/19				HOLDER FOR AN INITIATOR SYSTEM	Pending
Russian Federation	DMC002RU	2005136473	4/14/04	RU 2367898	9/20/2009		FOR DETONATING CORDS FOR X-RAY	Issued
Russian Federation	DMC007RU	2016104882	2/15/16	2659934	7/4/2018		COMPONENTS AND SYSTEM	Issued
Russian Federation	DMC009RU	2016110014	3/21/16	2662840	7/31/2018		PERFORATING GUN AND DETONATOR ASSEMBLY	Issued
Russian Federation	DMC010RU	2013147871	10/28/13	2593046	7/6/2016		PACKING FOR HOLLOW CHARGES	Issued

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Russian Federation	DMC013RU	2016110013	3/21/16	2659933	7/4/2018	BALLISTIC TRANSFER MODULE	Issued
Russian Federation	DMC014RU	2016139136	3/5/15	2677513	1/17/2019	FOR POSITIONING A DETONATOR WITHIN A PERFORATING GUN	Issued
Russian Federation	DMC021RU	2016109329	3/16/16			HAVING A PIVOTABLE ELECTRIC CONTACT	Allowed
Russian Federation	DMC021RUDiv	2019137475	11/21/19			ASSEMBLY (VARIANTS) AND A BULKHEAD	Pending
Russian Federation	DMC027RU	2018143262	3/2/17	2699145	9/3/2019	HIGH TEMPERATURE INITIATOR	Issued
						STRUCTURE WITH INTEGRATED SELECTIVE ELECTRONIC SWITCH CIRCUITRY, PRESSURE-ISOLATING ENCLOSURE	Pending
Russian Federation	DMC030RU	2019136666	4/13/18			CIRCUIT AND METHOD FOR USE	Pending
South Africa	DMC024ZA	2019/05139	8/2/19			MULTIFUNCTIONAL	Issued
Spain	DMC011ES	2626010	7/21/17	2697597	3/1/2017		
Thailand	DMC027TH	1801006781	11/2/18			HIGH TEMPERATURE INITIATOR	Published
						SELF-CONTAINED AND COMPRESSED EXPLOSIVE INITIATION PELLET	Pending
Thailand	DMC032TH	1901006095	3/12/18				
United Kingdom	DMC003GB	4765481.9	9/22/04	EP1685308 B1	10/10/2007	SYSTEM PRODUCING SELF-CLOSING	Issued
United Kingdom	DMC007GB	1600085.3	1/4/16	GB2531450	2/22/2017	COMPONENTS AND SYSTEM	Issued
United Kingdom	DMC007GBDiv1	GB1700625.5	1/13/17	2548203	3/21/2018	COMPONENTS AND SYSTEM	Issued

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United Kingdom	DMC007GBDiv2	1717516.7	10/25/17	2555538	11/7/2018	COMPONENTS AND SYSTEM	Issued
United Kingdom	DMC012GB	13774155.9	10/8/13	2904195	12/5/2018	WITH A HOLDING SYSTEM FOR HOLLOW CHARGES FOR A HIGH TEMPERATURE INITIATOR	Issued
United Kingdom	DMC027GB	1819863	3/2/17			FOR DETONATING CORDS FOR X-RAY EXAMINATION AND SAFE	Published
United States	DMC002US	10/554,245	7/28/06	8009801	8/30/2011	FOR DETONATING CORDS FOR X-RAY EXAMINATION AND SAFE	Issued
United States	DMC002USDiv	13/210,832	8/16/11	8540072	9/24/2013	FOR DETONATING CORDS FOR X-RAY	Issued
United States	DMC003US	10/573,581	1/12/07	7607379	10/27/2009	SYSTEM FOR SEALING PERFORATION HOLES	Issued
United States	DMC007US	14/904,788	1/13/16	9494021	11/15/2016	COMPONENTS AND SYSTEM	Issued
United States	DMC007USCon1	15/920,800	3/14/18			COMPONENTS AND SYSTEM	Published
United States	DMC007USCon2	15/920,812	3/14/18			COMPONENTS AND SYSTEM	Published
United States	DMC007USCon3	16/359,540	3/20/19	10472938	11/12/2019	COMPONENTS AND SYSTEM	Issued
United States	DMC007USCon4	16/585,790	9/27/19			COMPONENTS AND SYSTEM	Pending
United States	DMC007USDiv1	15/287,309	10/6/16	9702680	7/11/2017	COMPONENTS AND SYSTEM	Issued
United States	DMC007USDiv2	15/617,344	6/8/17	10429161	10/1/2019	COMPONENTS AND SYSTEM	Issued
United States	DMC008US	10/014,302	11/13/01	6662883	12/16/2003	ASSEMBLY FOR A PERFORATING GUN	Issued

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United States	DMC009US	14/767,058	8/11/15	9605937	3/28/2017	PERFORATING GUN AND DETONATOR ASSEMBLY	Issued
United States	DMC009USCon	14/932,865	11/4/15	9581422	2/28/2017	PERFORATING GUN AND DETONATOR ASSEMBLY	Issued
United States	DMC009USConRe	16/287,150	2/27/19			PERFORATING GUN AND DETONATOR ASSEMBLY	Pending
United States	DMC010US	14/005,678	9/22/13	9945651	4/17/2018	CHARGES	Issued
United States	DMC011US	14/111,310	10/11/13	8960093	2/24/2015	IGNITER WITH A MULTIFUNCTIONAL PLUG	Issued
United States	DMC012US	14/434,331	6/15/15	10370944	8/6/2019	WITH A HOLDING SYSTEM FOR HOLLOW CHARGES FOR A	Issued
United States	DMC013US	14/911,351	2/10/16	9890619	2/13/2018	MODULE	Issued
United States	DMC013USDiv	15/856,227	12/28/17	9988885	6/5/2018	A PERCUSSION INITIATOR	Issued
United States	DMC014US	15/117,228	8/8/16	10188990	1/29/2019	FOR POSITIONING A DETONATOR WITHIN A PERFORATING GUN	Issued
United States	DMC014USCon1	16/026,431	7/3/18	10507433	12/17/2019	FOR POSITIONING A DETONATOR WITHIN A PERFORATING GUN	Issued
United States	DMC014USCon2	16/540,484	8/14/19			POSITIONING DEVICE	Published
United States	DMC015US	15/331,954	10/24/16	9827618	11/21/2017	INITIATOR HEAD ASSEMBLY	Issued
United States	DMC015USCon	15/788,367	10/19/17	10309199	6/4/2019	INITIATOR HEAD ASSEMBLY	Issued

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United States	DMC015USDiv	16/387,696	4/18/19				METHOD OF MAKING AN INITIATOR HEAD ASSEMBLY	Published
United States	DMC022US	15/743,718	1/11/18				INITIATION FOR NON-AXISYMMETRIC SHAPED CHARGE	Published
United States	DMC023_21US	15/068,786	3/14/16	9784549	10/10/2017		HAVING A PIVOTABLE ELECTRIC CONTACT COMPONENT AND	Issued
United States	DMC023_21USCip						HAVING A PIVOTABLE ELECTRIC CONTACT COMPONENT AND	Unfiled
United States	DMC023_21USCon1	16/156,339	10/10/18	10352674	7/16/2019		ASSEMBLY FOR CRIMP RESISTANCE	Issued
United States	DMC023_21USCon2	16/423,789	5/28/19				ASSEMBLY FOR CRIMP RESISTANCE	Published
United States	DMC023_21USDiv1	15/612,953	6/2/17	10066921	9/4/2018		HAVING A PIVOTABLE ELECTRIC CONTACT COMPONENT AND	Issued
United States	DMC023_21USDiv2	16/056,944	8/7/18	10365078	7/30/2019		FOR BULKHEAD ASSEMBLY	Issued
United States	DMC024US	15/499,439	4/27/17	9915513	3/13/2018		CIRCUIT AND METHOD FOR USE	Issued
United States	DMC024USCon	15/880,153	1/25/18				ELECTRONIC IGNITION CIRCUIT	Published
United States	DMC024USCon2						ELECTRONIC IGNITION CIRCUIT	Unfiled
United States	DMC025US	15/781,876	6/6/18				FOAM PACKAGE	Published

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SCHEDULE A

United States	DMC026US	15/499,408	4/27/17	9862027	1/9/2018	SHAPED CHARGE LINER, METHOD OF MAKING SAME, AND SHAPED CHARGE	Issued
United States	DMC026USCon1	15/831,830	12/5/17	10376955	8/13/2019	AND SHAPED CHARGE INCORPORATING SAME	Issued
United States	DMC027US	16/092,371	10/9/18			INITIATOR	Published
United States	DMC028US	16/190,465	11/14/18			UNDERBALANCE INITIATED SAFETY FIRING HEAD, WELL COMPLETION	Published
United States	DMC029US	16/225,299	12/19/18			WELL COMPLETION DEVICE WITH A FIRING	Published
United States	DMC030US	15/950,453	4/11/18	10161733	12/25/2018	STRUCTURE WITH INTEGRATED SELECTIVE ELECTRONIC SWITCH CIRCUITRY, PRESSURE-ISOLATING ENCLOSURE CONTAINING SUCH	Issued
United States	DMC030USCon	16/194,440	11/19/18			STRUCTURE WITH INTEGRATED SELECTIVE	Published
United States	DMC032US	16/486,621	8/16/19			SELF-CONTAINED AND COMPRESSED EXPLOSIVE	Published
United States	DMC033US	16/004,541	6/11/18			METHOD OF MAKING SAME, AND SHAPED	Published
United States	DMC037US	16/152,933	10/5/18	10386168	8/20/2019	DETONATING CORD FOR PERFORATING GUN	Issued
United States	DMC037USDiv	16/503,839	7/5/19			DETONATING CORD FOR PERFORATING GUN	Published



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United States	DMC039US	16/568,503	9/12/19				INSPECTION TOOL FOR A PERFORATING GUN SEGMENT	Allowed
United States	DMC039USCon						PERFORATING GUN SEGMENT	Unfiled
United States	DMC042US	15/975,816	5/10/18	10400558	9/3/2019		DETONATOR AND METHOD OF USE	Issued
United States	DMC042USDiv	16/515,176	7/18/19				DETONATOR AND PERFORATING GUN	Published
United States	DMC043USP1						TUBING IN A SINGLE WIRELINE RUN FOR OIL WELL ABANDONMENT	Unfiled
United States	DMC043USP2						TUBING IN A SINGLE WIRELINE RUN FOR OIL WELL ABANDONMENT	Unfiled
United States	DMC044US	16/661,164	10/23/19				ELECTRONIC TIME DELAY FUSE	Pending
United States	DMC045US	16/002,217	6/7/18	10520286			INLAY FOR SHAPED CHARGE AND METHOD OF USE	Allowed
United States	DMC045USCip	16/258,810	1/28/19				SYSTEM AND METHOD OF USE	Published
United States	DMC047US - may file as natl phase						HOLDER FOR AN INITIATOR SYSTEM	Unfiled
United States	DMC047USP	62/792,460	1/15/19				HOLDER FOR AN INITIATOR SYSTEM	Pending
United States	DMC049US	16/379,341	4/9/19				DETONATION ACTIVATED WIRELINE RELEASE TOOL	Published
United States	DMC050US	16/272,326	2/11/19	10458213	10/29/2019		FOR SHAPED CHARGES IN A PERFORATING GUN	Issued

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United States	DMC050USCon1	16/455,816	6/28/19			FOR SHAPED CHARGES IN A PERFORATING GUN	Pending
United States	DMC050USD					DETONATOR HOLDER	Unfiled
United States	DMC050USP2	62/780,427	12/17/18			FOR SHAPED CHARGES IN A PERFORATING GUN	Pending
United States	DMC051US	16/695,729	11/26/19			FIRING HEAD AND METHOD OF UTILIZING A FIRING HEAD	Pending
United States	DMC052USP	62/847,488	5/14/19			TOOL FOR ACTUATING A TOOL IN A WELLBORE	Pending
United States	DMC054US	16/511,495	7/15/19			PERFORATING GUN	Pending
United States	DMC056USP	62/880,330	7/30/19			CHARGE APPARATUS FOR OPTIMIZED	Pending
United States	DMC057US					PERFORATING GUN ASSEMBLY AND	Unfiled
United States	DMC057USP	62/827,468	4/1/19			PERFORATING GUN ASSEMBLY AND	Pending
United States	DMC059USP1	62/853,824	5/29/19			REVERSE BURN POWER CHARGE FOR A WELLBORE TOOL	Pending
United States	DMC060USP1	62/861,601	6/14/19			CARRIER	Pending
United States	DMC060USP2	62/928,462	10/31/19			CARRIER	Pending
United States	DMC060USP3					HOUSING HAVING BANDED SCALLOP AND	Unfiled
United States	DMC062USP2	62/908,747	10/1/19			WITH INTEGRATED INITIATOR	Pending
United States	DMC063USP2					ELECTRICAL SHIELD	Unfiled
United States	DMC507US	16/423,730	5/28/19			SYSTEM AND METHOD	Allowed
United States	DMC507USP	62/841,382	5/1/19			SYSTEM AND METHOD	Pending

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United States	DMC508USP	62/880,182	7/30/19			SYSTEM AND METHOD FOR NAVIGATING A WELLBORE AND DETERMINING	Pending
United States	DMC511USP	62/870,865	7/5/19			SYSTEM AND METHOD FOR NAVIGATING A WELLBORE AND DETERMINING	Pending
United States	DMC512US	16/537,720	8/12/19			FOR NAVIGATING A WELLBORE AND DETERMINING	Pending
United States	DMC512USP1	62/823,737	3/26/19			FOR NAVIGATING A WELLBORE AND DETERMINING	Pending
United States	DMC512USP2	62/831,215	4/9/19			FOR NAVIGATING A WELLBORE AND DETERMINING	Pending
United States	DMC513US	16/451,440	6/25/19			PERFORATING DRONE	Published
United States	DMC513USCIP	16/542,890	8/16/19			PERFORATING DRONE	Pending
United States	DMC513USP1	62/816,649	3/11/19			PERFORATING DRONE	Pending
United States	DMC513USP2	62/842,329	5/2/19			BOTTOM-FIRE PERFORATING DRONE DELIVERY SYSTEM	Pending
United States	DMC516USP1	62/862,806	6/18/19			DELIVERY SYSTEM	Pending
United States	DMC516USP2	62/940,480	11/26/19			AUTOMATED DRONE DELIVERY SYSTEM	Pending
United States	DMC519USP					WIPER PLUG	Unfiled
World Intellectual Property Organization	DMC028WO	PCT/EP2018/082373	11/23/18			UNDERBALANCE INITIATED SAFETY FIRING HEAD, WELL COMPLETION	Published
World Intellectual Property Organization	DMC029WO	PCT/EP2019/050793	1/14/19			WELL COMPLETION DEVICE WITH A FIRING HEAD ASSEMBLY AND METHOD OF USE	Published

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World Intellectual Property Organization	DMC030WO	PCT/EP2018/059531	4/13/18			STRUCTURE WITH INTEGRATED SELECTIVE ELECTRONIC SWITCH CIRCUITRY, PRESSURE-ISOLATING ENCLOSURE CONTAINING SUCH	Published
World Intellectual Property Organization	DMC031WO	PCT/EP2019/063773	5/28/19			CONTOURED LINER FOR A RECTANGULAR SLOTTED SHAPED CHARGE	Pending
World Intellectual Property Organization	DMC032WO	PCT/EP2018/056107	3/13/18			SHAPED CHARGE WITH SELF-CONTAINED AND COMPRESSED EXPLOSIVE INITIATION PELLET	Published
World Intellectual Property Organization	DMC033WO	PCT/EP2018/064473	6/1/18			METHOD OF MAKING SAME, AND SHAPED CHARGE INCORPORATING SAME	Published
World Intellectual Property Organization	DMC034WO	PCT/EP2018/074219	9/7/18			SHAPED CHARGE FOR HIGH TEMPERATURE WELLBORE OPERATIONS AND METHOD OF	Published
World Intellectual Property Organization	DMC035WO	PCT/EP2018/080831	11/9/18			CLOSURE MEMBER AND ENCAPSULATED SLOTTED SHAPED CHARGE WITH CLOSURE MEMBER	Published
World Intellectual Property Organization	DMC037WO	PCT/EP2019/063214	5/22/19			CONDUCTIVE DETONATING CORD FOR PERFORMING GUN	Pending

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World Intellectual Property Organization	DMC039WO	PCT/EP2019/074433	9/12/19			INSPECTION TOOL FOR A PERFORATING GUN SEGMENT	Pending
World Intellectual Property Organization	DMC040WO	PCT/EP2018/083389	12/3/18			EXPOSED BALLISTIC TRANSFER WITH ENCAPSULATED RECEIVER BOOSTER	Published
World Intellectual Property Organization	DMC041WO	PCT/EP2019/081050	11/12/19			BALLISTIC CENTERING CHARGES	Pending
World Intellectual Property Organization	DMC042WO	PCT/EP2019/052561	2/3/19			FLUID-DISABLED DETONATOR AND METHOD OF USE	Published
World Intellectual Property Organization	DMC044WO	PCT/EP2019/079437	10/28/19			ELECTRONIC TIME DELAY FUSE	Pending
World Intellectual Property Organization	DMC045WO	PCT/EP2019/054442	2/22/19			PERFORATING GUN SYSTEM AND METHOD OF USE	Published
World Intellectual Property Organization	DMC047WO	PCT/EP2019/085528	12/17/19			BOOSTER CHARGE HOLDER FOR AN INITIATOR SYSTEM	Pending

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World Intellectual Property Organization	DMC048WO	PCT/EP2018/080298	11/6/18	HIGH SHOT DENSITY CHARGE HOLDER FOR PERFORATING GUN	Published
World Intellectual Property Organization	DMC050WO	PCT/IB2019/000569	5/2/19	POSITIONING DEVICE FOR SHAPED CHARGES IN A PERFORATING GUN MODULE	Pending
World Intellectual Property Organization	DMC051WO	PCT/EP2019/082786	11/27/19	FIRING HEAD AND METHOD OF UTILIZING A FIRING HEAD	Pending
World Intellectual Property Organization	DMC054WO	PCT/EP2019/069165	7/16/19	SINGLE CHARGE PERFORATING GUN	Pending
World Intellectual Property Organization	DMC501WO	PCT/IB2019/000537	3/18/19	SYSTEMS AND METHODS FOR MARKER INCLUSION IN A WELLBORE	Published
World Intellectual Property Organization	DMC502WO	PCT/IB2019/000530	3/29/19	TETHERED DRONE FOR DOWNHOLE OIL AND GAS WELLBORE OPERATIONS	Pending
World Intellectual Property Organization	DMC505WO	PCT/IB2019/000526	4/12/19	DRONE STRING FOR DOWNHOLE OIL AND GAS WELLBORE OPERATIONS	Published

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World Intellectual Property Organization	DMC506WO	PCT/EP2019/072055	8/16/19			SYSTEM AND METHOD TO CONTROL AUTONOMOUS DEVICES	Pending
World Intellectual Property Organization	DMC507WO	PCT/EP2019/063966	5/29/19			DRONE CONVEYANCE SYSTEM AND METHOD FOR NAVIGATING WITHIN A WELLBORE AND DETERMINING LOCATION IN A	Published
World Intellectual Property Organization	DMC512WO	PCT/EP2019/072032	8/16/19			BOTTOM-FIRE PERFORATING DRONE	Pending
World Intellectual Property Organization	DMC513WO	PCT/EP2019/066919	6/25/19			AUTONOMOUS PERFORATING DRONE	Pending

UR. Nr. 1726/2019

The autographic signatures on the previous page done in my presence by

Mr Achim Pabst, born 12 April 1965,  
with business address 53840 Troisdorf, Kaiserstraße 3, Germany  
personally known to me,

are hereby certified by me.

After my today's examination of the Register of Commerce HR B 6271 of the County  
Court of Siegburg I furthermore attest, that Mr Achim Pabst as Managing Director is  
entitled to represent solely the company "DynaEnergetics Europe GmbH" (limited liabil-  
ity company) in Troisdorf.



Troisdorf, 20 Dezember 2019

A handwritten signature in black ink, appearing to read "Sabine Uedelhoven", with a horizontal line extending to the right.

Sabine Uedelhoven,  
appointed Notary public before OLG Köln  
(Higher Regional Court) with official residence  
in Troisdorf, Germany