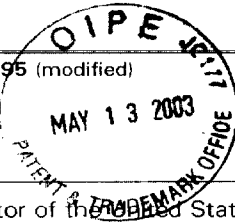


FORM PTO-1595 (modified)

Rev 6-93)



RECC

05-16-2003



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U.S. DEPARTMENT OF COMMERCE

Patent and Trademark Office

To the Director of the United States Patent and Trademark Office: Please record the attached original documents or copies thereof.

1. Name of conveying party(ies):

The Ensign Bickford Company

Additional conveying party(ies) NO

3. Nature of conveyance:

ASSIGNMENT

Execution Date:

May 2, 2003

2. Name and address of receiving party(ies):

Dyno Nobel Holding AS
 Drammensveien 147 A
 PO Box 664 Skøyen
 N-0214 Oslo
 NORWAY

Additional name(s) & address(es) attached? NO

4. Application number(s) or patent number(s):

If this is being filed together with a new application, the execution date of the application is: N/A

A. Patent Application Number(s):

60/268,624 60/286,165 60/371,261 60/425,489
 60/051,138 60/116,493 10/315,455 60/153,497
 60/151,558 09/645,276 60/206,877 09/863,795

B. Patent Number(s):

5,398,611 5,171,935 5,377,592 5,173,569
 5,435,248 5,827,994 5,631,440 5,494,152
 5,703,320 5,501,151 5,597,973 5,499,581
 5,792,975 5,621,184 5,413,046 5,522,318
 5,133,257 5,837,924 5,939,661 4,517,895
 5,837,924 5,939,661 4,517,895 5,708,228
 5,747,722 5,703,319 5,780,764 5,614,693
 5,661,256 5,659,149 6,170,398 6,347,566
 5,714,712 6,079,332 6,311,621 5,889,228
 6,408,759 5,929,368 5,912,428 6,268,775
 6,508,176 6,508,177 5,031,538 4,607,573
 4,771,694 4,742,773 5,192,828 5,009,163

Additional numbers attached? NO

5. Name and address of party to whom correspondence concerning document should be mailed:

Christopher M. Turoski
 FOLEY & LARDNER
 Suite 3800
 777 East Wisconsin Avenue

05/16/2003 0000015-0020024 58202-5306

6. Total number of applications/patents involved: 60

7. Total fee (37 C.F.R. § 3.41): \$2,400.00

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8. Deposit account number: 06-1447

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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. The Commissioner is hereby authorized to charge any additional recordation fees which may be required in this matter to the above-identified deposit account.

Christopher M. Turoski

(Reg. No. 44,456)

Name

Signature

Date

I hereby certify that this document is being deposited with the United States Postal Service as first class mail in an envelope addressed to the Commissioner for Patents, Alexandria, VA 22313 on this 9th day of May, 2003. Total number of pages including cover sheet, attachments, and document: 11

By Foley & Lardner

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NO. 5091 P. 4

ASSIGNMENT OF PATENT ASSETS

This assignment, effective as of May 2, 2003, is made in furtherance of, and not in derogation of, obligations undertaken in an agreement styled "Business Combination Agreement", dated as of February 19, 2003, by and among Ensign-Bickford Industries, Inc. ("EBI"); The Ensign-Bickford Company, a wholly-owned subsidiary of EBI; Ensign-Bickford Realty Corporation, a wholly-owned subsidiary of EBI; Dyno Nobel Holding ASA ("Dyno Holding"); Dyno Nobel Holding USA, Inc., an indirect wholly-owned subsidiary of Dyno Holding ("Dyno USA"); Dyno Nobel Inc., a wholly-owned subsidiary of Dyno USA; and Industri Kapital 2000 Limited. Pursuant to the aforesaid Business Combination Agreement, The Ensign-Bickford Company (hereinbelow referred to as "ASSIGNOR") a Connecticut corporation with a principal place of business at 100 Grist Mill Road, Simsbury, Connecticut 06070-0483, is to assign to Dyno Nobel Holding AS (formerly, Dyno Nobel Holding ASA and hereinbelow referred to as "ASSIGNEE"), a Norwegian corporation with a principal place of business at Drammensveien, 147A, Skøyen N-0214, Oslo, Norway.

1. Subject to the terms of said Business Combination Agreement and in consideration of certain obligations undertaken therein by ASSIGNEE, ASSIGNOR hereby sells, assigns and transfers to ASSIGNEE, the entire right, title and interest in and to the inventions, and the patents and patent applications set forth in the attached Exhibits PA-US, PA-FOREIGN, PIP and PIOA, which exhibits are incorporated herein and made part hereof, including any and all divisional, continuation, continuation-in-part, re-examination, reissue and comparable applications based on the aforesaid patents or patent applications, and any and all Letters Patent or comparable rights issuing thereon in the United States and in all countries foreign thereto, together with any and all claims against others for infringement of any of the patent assets hereby assigned, and all rights of priority based on the filing of any of the aforesaid applications arising under the International Convention for the Protection of Industrial Property and any and all other international agreements to which the United States of America adheres, and the U.S. Commissioner of Patents and Trademarks and officials of any international organization and of any country or countries foreign to the United States whose duty it is to issue patents or comparable rights on patent applications as aforesaid, is requested to issue all Letters Patent or comparable rights for said inventions issuing on any application as aforesaid to ASSIGNEE or to the successors, assigns or legal representatives, if any, of ASSIGNEE.

2. ASSIGNOR further covenants that it has the lawful right to assign the interests conveyed herein in the manner and form as herein expressed and that the interests herein conveyed are free from prior assignment, grant, mortgage, license, lien or other encumbrance whatsoever, subject only to the agreements and licenses set forth on Schedule 3.10 and Schedule 3.12 to the Business Combination Agreement.

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NO. 5091 P. 5

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3. Any conflict between this assignment document and the aforesaid Business Combination Agreement, shall be controlled by the latter.

4. This assignment is executed and accepted on the dates indicated below.

ASSIGNOR

THE ENSIGN-BICKFORD COMPANY

Michael T. Long
By: Michael T. Long
Title: Secretary

As of May 2, 2003

State of Connecticut)
County of Hartford) ss.: Simsbury

On this 2nd day of May, 2003, before me, a Notary Public in and for the State and County aforesaid, personally appeared Michael T. Long known or satisfactorily proven to me to be the person of whose name is subscribed to this instrument, who acknowledged that he holds the position or title set forth therein, that he signed the instrument on behalf of the ASSIGNOR by proper authority and that the instrument was an act of the ASSIGNOR for the purposes stated therein.

Robert J. Russo
Notary Public

My Commission Expires: 9/30/03

The within Assignment is accepted by ASSIGNEE.

ASSIGNEE

DYNO NOBEL HOLDING AS

Odd Arild Steen
By: ODD ARILD STEEN
Title: SVP

May, 2003

The undersigned Notary Public hereby certifies that Odd Arild Steen has signed this document.

The signature is certified on the basis of the signature deposited in our register of signatories.

Uso byfjert av notarius publicus, 9 May 2003

Kicki Gundersen
Notary Public
Kicki Gundersen
førstekonsulent

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PATENT
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EXHIBIT PA-US

<u>Docket No.</u>	<u>Title</u>	<u>Status</u>	<u>Application No.</u>	<u>Patent No</u>
P-010	Self-Calibrating Timer Circuit for Electronic Delay Detonator	Expired	60/268,624	
P-010-1/PCT	Delay Detonator Timing Circuit	Pending	PCT/US02/04069	
P-011	Detonator With High Length-to-Diameter Ratio	Expired	60/286,165	
P-011-1/PCT	Non-Electric Detonator	Pending	PCT/US02/12803	
P-025	Hinged Connector Block	Pending	60/371,261	
P-033	Supply Method for Monitoring Borehole Position and Profiling MineFace after a Blast to Optimize Blast Performance	Pending	60/425,489	
P-1331-1	Low Energy Blasting Initiation System, Method and Surface Connection Therefor	Issued	08/118,576	5,398,611
P-1331A	Low-Energy Blasting Initiation System, Method and Surface Connection Thereof	Issued	07/608,993	5,171,935
P-1337	Impulse Signal Delay Unit	Issued	07/949,466	5,377,592
P-1337-8/PCT	Digital Delay Unit	Expired	PCT/US93/12319	
P-1337A	Digital Delay Detonator	Issued	730,275	5,173,569

<u>Docket No.</u>	<u>Title</u>	<u>Status</u>	<u>Application No.</u>	<u>Patent No</u>
P-1338	Extended Range Digital Delay Detonator	Issued	07/994,676	5,435,248
P-1367	Fissile Shock Tube and Method of Making the Same	Issued	08/678,106	5,827,994
P-1367/PCT	Fissile Shock Tube and Method of Making the Same	Expired	PCT/US97/11872	
P-1371/PCT	Universal Isolation Member and Non-Electric Detonator Cap Including the Same	Expired	PCT/US95/14444	
P-1371-1	Universal Isolation Member and Non-Electric Detonator Cap Including the Same	Issued	08/606,224	5,631,440
P-1373	Detonator Packaging System	Issued	08/096,905	5,494,152
P-1373/PCT	Detonator Packaging System	Expired	PCT/US94/05197	
P-1378	Connector for Blast Initiation System	Issued	08/576,003	5,703,320
P-1378/PCT	Connector for Blast Initiation System	Expired	PCT/US96/19548	
P-1382	Alternate Signal Path Isolation Member and Non-Electric Detonator Cap Including the Same	Issued	08/327,204	5,501,151
P-1382/PCT	Alternate Signal Path Isolation Member and Non-Electric Detonator Cap Including the Same	Expired	PCT/US95/14445	
P-1383/PCT	Isolation Member with Improved Static Discharge Barrier and Non-Electric Detonator Cap Including the Same	Expired	PCT/US95/13093	

<u>Docket No.</u>	<u>Title</u>	<u>Status</u>	<u>Application No.</u>	<u>Patent No</u>
P-1385	Signal Transmission Fuse	Issued	08/380,839	5,597,973
P-1385/PCT	Improved Signal Transmission Fuse	Expired	PCT/US95/11530	
P-1393	Molded Article Having Integral Displaceable Member or Members and Method of Use	Issued	08/249,522	5,499,581
P-1393/PCT	Molded Article Having Integral Displaceable Member or Members and Method of Use	Expired	PCT/US95/06359	
P-1393-1	Connector Block Having Detonator-Positioning Locking Means	Issued	08/548,590	5,792,975
P-1393-1/PCT	Connector Block Having Detonator-Positioning Locking Means	Expired	PCT/US96/15262	
P-1400	Programmable Electronic Timer Circuit	Issued	08/420,991	5,621,184
P-1400/PCT	Programmable Electronic Timer Circuit	Expired	PCT/US96/04471	
P-1402	Shock Tube Assembly	Issued	08/212,200	5,413,046
P-1402/PCT	Shock Tube Assembly	Expired	PCT/US95/02590	
P-1427-1	Cushion Element for Detonators and the Like; Apparatus and Method for Assembly	Issued	08/376,063	5,522,318
P-1429	Ignition System and a Method for the Initiation Thereof	Issued	07/460,897	5,133,257

<u>Docket No.</u>	<u>Title</u>	<u>Status</u>	<u>Application No.</u>	<u>Patent No</u>
P-1441	Signal Transmission Tube Using Reclaim Material and Method of Manufacture	Issued	08/561,615	5,837,924
P-1443/PCT	Fluid Activated Detonating System	Expired	PCT/US93/09683	
P-1444	Method of Manufacturing an Explosive Carrier Material and Articles Containing the Same	Issued	08/778,960	5,939,661
P-1449	Electric Initiator Resistant to Actuation By Radio Frequency and Electrostatic Energies	Issued	06/441,755	4,517,895
P-1451	Method and Apparatus for Transfer of Initiation Signals	Issued	08/548,813	5,708,228
P-1451/PCT	Method and Apparatus for Transfer of Initiation Signals	Expired	PCT/US96/19547	
P-1462	Detonators Having Multiple-Line Input Leads	Issued	08/548,815	5,747,722
P-1462/PCT	Detonators Having Multiple-Line Input Leads	Expired	PCT/US96/20875	
P-1470	Connector Block for Blast Initiation Systems	Issued	08/549,160	5,703,319
P-1470/PCT	Connector Block for Blast Initiation Systems	Expired	PCT/US96/15240	
P-1480	Booster Explosive Devices and Combinations Thereof with Explosive Accessory Charges	Issued	08/548,814	5,780,764
P-1480/PCT	Booster Explosive Devices with Explosive Accessory Charges	Expired	PCT/US97/00377	

<u>Docket No.</u>	<u>Title</u>	<u>Status</u>	<u>Application No.</u>	<u>Patent No</u>
P-1480-1	Accessory Charges for Booster Explosive Devices	Issued	08/548,812	5,614,693
P-1480-1/PCT	Accessory Charges for Booster Explosive Devices	Expired	PCT/US97/00376	
P-1480-2	Slider Member for Booster Explosive Charges	Issued	08/575,244	5,661,256
P-1480-2/PCT	Slider Member for Booster Explosive Charges	Expired	PCT/US97/00697	
P-1482	Secure Connector for Blast Initiation Signal Transfer	Issued	08/576,004	5,659,149
P-1482/PCT	Secure Connector for Blast Initiation Signal Transfer	Expired	PCT/US96/20893	
P-1496	Signal Transmission Fuse	Issued	08/920,516	6,170,398
P-1496/PCT	Signal Transmission Fuse and Method of Making the Same	Expired	PCT/US98/17554	
P-1496-1/PCT	Signal Transmission Fuse and Method of Making the Same	Expired	PCT/US98/18022	
P-1496-2	Method of Making a Signal Transmission Fuse	Issued	09/627,830	6,347,566 B1
P-1497	High Explosive Initiation System	Issued	08/738,173	5,714,712
P-1503	Shock-Resistant Electronic Circuit Assembly	Issued	08/742,296	6,079,332
P-1503/PCT	Shock-Resistant Electronic Circuit Assembly	Expired	PCT/US97/18484	

<u>Docket No.</u>	<u>Title</u>	<u>Status</u>	<u>Application No.</u>	<u>Patent No</u>
P-1503-1	Shock-Resistant Electronic Circuit Assembly	Issued	09/455,548	6,311,621 B1
P-1504	Detonator with Loosely Packed Ignition Charge and Method of Assembly	Issued	08/831,664	5,889,228
P-1504-1	Initiator with Loosely Packed Ignition Charge and Method of Assembly	Issued	09/402,868	6,408,759 B1
P-1504-1/PCT	Initiator with Loosely Packed Ignition Charge and Method of Assembly	Expired	PCT/US98/06146	
P-1510	Hybrid Electronic Detonator Delay Circuit Assembly	Issued	08/762,262	5,929,368
P-1510/PCT	Hybrid Electronic Detonator Delay Circuit Assembly	Expired	PCT/US97/22404	
P-1515	Signal Line Coiling Method and Mine-Clearing Apparatus Using Same	Expired	60/051,138	
P-1519	Electronic Circuitry for Timing and Delay Circuits	Issued	08/879,162	5,912,428
P-1519/PCT	Electronic Circuitry for Timing and Delay Circuits	Expired	PCT/US98/12112	
P-1519-1	Dual Capacitor Oscillator Circuit	Issued	09/303,531	6,268,775 B1

<u>Docket No.</u>	<u>Title</u>	<u>Status</u>	<u>Application No.</u>	<u>Patent No</u>
P-1605	Low-Energy Detonating Cord Accumulator and Method for Initiation of Explosive Charges	Expired	60/116,493	
P-1605-1	Explosive Charge and Method of Making and Use of the Same	Issued	09/488,225	6,508,176
P-1605-1/PCT	Accumulated Detonating Cord Charge, Method of Use	Pending	PCT/US00/01227	
P-1605-2	Accumulated Detonating Cord Explosive Charge and Method of Making and Use of the Same	Pending	10/315,455	
P-1615	Cast Explosives with Embedded Bodies	Expired	60/153,497	
P-1615-1/PCT	Explosives with Embedded Bodies	Pending	PCT/US00/40877	
P-1615-1	Explosives with Embedded Bodies	Issued	09/659,243	6,508,177 B1
P-1626	Rigid Explosive Device and Method of Use	Expired	60/151,558	
P-1626-1	Rigid Reactive Cord and Method of Use and Manufacture	Pending	09/645,276	
P-1641	Delay Train Ignition Buffer	Issued	07/476,328	5,031,538
P-1643	Laminated Fuse and Manufacturing Process Therefore	Issued	596,449	4,607,573
<u>Docket No.</u>	<u>Title</u>	<u>Status</u>	<u>Application No.</u>	<u>Patent No</u>

P-1645	Blasting Signal Transmission Tube Connector	Issued	898,652	4,771,694
P-1646	Blasting Signal Transmission Tube Delay Unit	Issued	914,785	4,742,773
P-1650	Detonating Cord and Blasting Cap Connector Block Having a Resilient Free End Cord Latch	Issued	07/851,045	5,192,828
P-1651	Non-Electric Signal Transmission Device Connection, Method and Apparatus Therefor	Issued	07/511,077	5,009,163
P-1659	Detonating Cord Having Controlled Velocity of Detonation and Methods of Making and Using the Same	Expired	60/206,877	
P-1659-1	Detonating Cord and Methods of Making and Using the Same	Pending	09/863,795	
P-1659-1/PCT	Detonating Cord and Methods of Making and Using the Same	Pending	PCT/US01/16642	