U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Officer the raperwork Reduction Act of 1995, no p	de sons are required to respond to a collection of lind					
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US)		Attorney Docket No.				
CONCERNING A SUBMISSI	` '	U.S. Application No. (if known, see 37 CFR 1.5)				
International Application No.	ernational Application No. International Filing Date					
Title of Invention						
First Named Inventor						
Applicant herewith submits to the United St	ates Designated/Elected Office (DO/EO/US)	the following items and other information.				
35 U.S.C. 371(f) will not be effective u	tional examination procedures (35 U.S.C. 371 nless the requirements under 35 U.S.C. 371(c Application and English translation thereof (if r	c)(1), (2), and (4) for payment of the basic				
	(35 U.S.C. 371(c)(2)) is attached hereto (not national Bureau or was filed in the United State					
3. An English language translation of the	International Application (35 U.S.C. 371(c)(2)))				
a. is attached hereto.	1 05110 0 454 1/4					
· · ·	b. has been previously submitted under 35 U.S.C. 154(d)(4).					
4. An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4))a. is attached.						
b. was previously filed in the international phase under PCT Rule 4.17(iv).						
Items 5 to 8 below concern amendments ma	de in the international phase.					
PCT Article 19 and 34 amendments						
(35 U.S.C. 371(c)(3)).	Article 19 are attached (not required if comm	,				
6. English translation of the PCT Article	19 amendment is attached (35 U.S.C. 371(c)(3	3)).				
7. English translation of annexes (Article attached (35 U.S.C. 371(c)(5)).	19 and/or 34 amendments only) of the Interna	ational Preliminary Examination Report is				
Cancellation of amendments made in the intern	ational phase					
8a. Do not enter the amendment made in	the international phase under PCT Article 19.					
8b. Do not enter the amendment made in the international phase under PCT Article 34.						
NOTE: A proper amendment made in English instruction from applicant not to enter the amen		S. national phase application absent a clear				
The following items 9 to 17 concern a docur	nent(s) or information included.					
9. An Information Disclosure Statement	under 37 CFR 1.97 and 1.98.					
10. A preliminary amendment.						
11. An Application Data Sheet under 37 C	FR 1.76.					
12. A substitute specification. NOTE: A se	ubstitute specification cannot include claims. S	See 37 CFR 1.125(b).				
13. A power of attorney and/or change of	address letter.					
sequence listing in text format was ind	A computer-readable form of the sequence listing in accordance with PCT Rule 13 <i>ter</i> .3 and 37 CFR 1.821-1.825 (not required if sequence listing in text format was indicated on the PCT Request as part of the International Application and the sequence listing was published as part of the international application).					
15. Assignment papers (cover sheet and o	document(s)). Name of Assignee:					
16. 37 CFR 3.73(c) Statement (when then	e is an Assignee).					

This collection of information is required by 37 CFR 1.414 and 1.491-1.492. The information is required to obtain or retain a benefit by the public, which is to file A Federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with an information collection subject to the requirements of the Paperwork Reduction Act of 1995, unless the information collection has a currently valid OMB Control Number. The OMB Control Number for this information collection is 0651-0021. Public burden for this form is estimated to average 15 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection. Send comments regarding this burden estimate or any other aspect of this information collection, including suggestions for reducing this burden to the Chief Administrative Officer, United States Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450 or email InformationCollection@uspto.gov. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

PTO-1390 (11-23)

Approved for use through 11/30/2025. OMB 0651-0021

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

U.S. APPLN. No	o. (if known – se	e 37 CFR 1.5)	INTERNATIONAL	APPLICATION No. ATTORI		NEY DOCKET No.	
17. Other items or information:							
The following	fees have bee	n submitted.					CALCULATIONS
18. Basic	national fee (37	7 CFR 1.492(a))			\$320	\$
Examination fee (37 CFR 1.492(c)) If the written opinion prepared by ISA/US or the international preliminary examination report prepared by IPEA/US indicates all claims satisfy provisions of PCT Article 33(1)-(4)					\$		
Search fee (37 CFR 1.492(b)) If the written opinion prepared by ISA/US or the international preliminary examination report prepared by IPEA/US indicates all claims satisfy provisions of PCT Article 33(1)-(4)					\$		
TOTAL OF 18, 19, and 20 =						\$	
Additional fee for specification and drawings filed in paper over 100 sheets (excluding sequence listing in compliance with 37 CFR 1.821(c) or (e) in an electronic medium or computer program listing in an electronic medium) (37 CFR 1.492(j)). Fee for each additional 50 sheets of paper or fraction thereof					\$		
Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof (round up to a whole number)					
- 100 =	/ 50 = x \$420			6420			
Surcharge for furnishing any of the search fee, examination fee, or the oath or declaration after the date of commencement of the national stage (37 CFR 1.492(h))						\$	
CLAIMS	NUM	IBER FILED	NUMBER EXTRA	RATE			
Total claim	s	- 20 =		x \$100		\$	
Independent cl	aims	- 3 =		x \$480			\$
MULTIPLE DEPENDENT CLAIM(S) (if applicable) + \$860					\$		
Fee for submission of Sequence Listing text file of 300 MB to 800 MB (37 CFR 1.21(o)(1))					\$		
Fee for submission of Sequence Listing text file of more than 800 MB (37 CFR 1.21(o)(2))					\$		
Processing fee for furnishing the English translation later than 30 months from the earliest claimed priority date (37 CFR 1.492(i))					\$		
TOTAL OF ABOVE CALCULATIONS =					\$		
Applicant asserts small entity status. See 37 CFR 1.27. Fees above are reduced by 60%.							
Applicant certifies micro entity status. See 37 CFR 1.29. Fees above are reduced by 80%. Applicant must attach form PTO/SB/15A or B or equivalent.							
TOTAL NATIONAL FEE =					\$		
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31)					\$		
TOTAL FEES ENCLOSED =					\$		

PTO-1390 (11-23)

Approved for use through 11/30/2025. OMB 0651-0021

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

а. 🗌 д	check in the amount of \$	to 0	cover the above fees is end	losed.			
b. Ple	ease charge my Deposit Account No		in the amount of \$_			_ to cover the above fees.	
	The Director is hereby authorized to charge additional fees which may be required, or credit any overpayment, to Deposit Account No as follows:						
i	any required fee.						
ii.	ii. any required fee except for excess claims fees required under 37 CFR 1.492(d) and (e) and multiple dependent claim fee required under 37 CFR 1.492(f).						
be	Fees are to be charged to a credit card. WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038. The PTO-2038 should only be mailed or faxed to the USPTO. However, when paying the basic national fee, the PTO-2038 may NOT be faxed to the USPTO.						
ADVISORY: If filing by USPTO patent electronic filing system, do NOT attach the PTO-2038 form as a PDF along with your electronic submission. Please be advised that this is not recommended and by doing so your credit card information may be displayed via PAIR . To protect your information, it is recommended to pay fees online by using the electronic payment method.							
NOTE: Where an appropriate time limit under 37 CFR 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the International Application to pending status.							
Statement	under 37 CFR 1.55 or 1.78 for AIA (First Inv	entor to	File) Transition Applicat	ions			
	application (1) claims priority to or the benefit of		,		nd (2) also	contains, or contained at	
	me, a claim to a claimed invention that has an		•				
	y providing this statement under 37 CFR 1.55 under the first inventor to file provisions of			ing date or	or after M	larch 16, 2013, will be	
	U.S. national stage application may not claim			on of which	it is the na	tional phase. The filing	
date of a U.	S. national stage application is the internation	al filing d	ate. See 35 U.S.C. 363.			,	
Correspon	dence Address						
The address associated with Customer Number: OR Correspondence address below							
Name							
Address							
City		State			Zip Code		
Country				Telephone			
Email							
Signature				Date			
Name (Print/Type)				Registrat (Attorney			

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. The United States Patent and Trademark Office (USPTO) collects the information in this record under authority of 35 U.S.C. 2. The USPTO's system of records is used to manage all applicant and owner information including name, citizenship, residence, post office address, and other information with respect to inventors and their legal representatives pertaining to the applicant's/owner's activities in connection with the invention for which a patent is sought or has been granted. The applicable Privacy Act System of Records Notice for the information collected in this form is COMMERCE/PAT-TM-7 Patent Application Files, available in the Federal Register at 78 FR 19243 (March 29, 2013). https://www.govinfo.gov/content/pkg/FR-2013-03-29/pdf/2013-07341.pdf

Routine uses of the information in this record may include disclosure to:

- 1) law enforcement, in the event that the system of records indicates a violation or potential violation of law;
- 2) a federal, state, local, or international agency, in response to its request;
- 3) a contractor of the USPTO having need for the information in order to perform a contract;
- 4) the Department of Justice for determination of whether the Freedom of Information Act (FOIA) requires disclosure of the record:
- 5) a Member of Congress submitting a request involving an individual to whom the record pertains, when the individual has requested the Member's assistance with respect to the subject matter of the record;
- 6) a court, magistrate, or administrative tribunal, in the course of presenting evidence, including disclosures to opposing counsel in the course of settlement negotiations;
- 7) the Administrator, General Services Administration (GSA), or their designee, during an inspection of records conducted by GSA under authority of 44 U.S.C. 2904 and 2906, in accordance with the GSA regulations and any other relevant (i.e., GSA or Commerce) directive, where such disclosure shall not be used to make determinations about individuals;
- 8) another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c));
- 9) the Office of Personnel Management (OPM) for personnel research purposes; and
- 10) the Office of Management and Budget (OMB) for legislative coordination and clearance.

If you do not furnish the information requested on this form, the USPTO may not be able to process and/or examine your submission, which may result in termination of proceedings, abandonment of the application, and/or expiration of the patent.