



(51) **International Patent Classification:**
A61N 5/06 (2006.01) *A61N 7/00* (2006.01)

(21) **International Application Number:**
 PCT/US2019/032539

(22) **International Filing Date:**
 15 May 2019 (15.05.2019)

(25) **Filing Language:** English

(26) **Publication Language:** English

(30) **Priority Data:**
 62/671,632 15 May 2018 (15.05.2018) US

(71) **Applicant: HOLOBEAM TECHNOLOGIES INC.**
 [US/US]; 936 Roxbury Drive, Westbury, New York 11590 (US).

(72) **Inventor: DOLGOFF, Gene;** 936 Roxbury Drive, Westbury, New York 11590 (US).

(74) **Agent: ELMAN, Gerry J. et al.;** PO Box 209, Swarthmore, Pennsylvania 19081 (US).

(81) **Designated States** (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(54) **Title:** PRECISION DELIVERY OF ENERGY UTILIZING HOLOGRAPHIC ENERGY TELEPORTATION (HET) WITH TIME-CORRELATED STANDING-WAVE INTERFERENCE AND COHERENT INTENSITY AMPLIFICATION

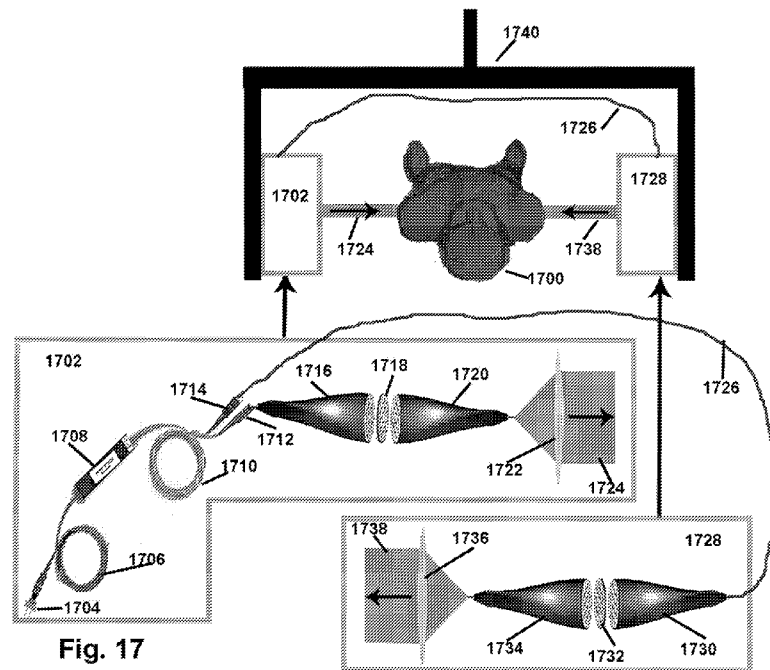


Fig. 17

(57) **Abstract:** By producing the proper wave interference using superimposed waves that overlap with the proper time-phase relationship (called "Time-Correlated Standing-wave Interference"), wave energy is amplified (by "Coherent Intensity Amplification") and teleported to precise locations. For instance, in one application, energy is teleported to one or more areas within a living body for such therapeutic applications as destroying cancer cells or plaques within arteries. A system implementing this technique creates amplified constructive interference at one or more selected disease locations, while producing destructive interference at surrounding locations. In this application example, the technique allows energy to be "teleported" to tumor cells, plaques, or other diseased cells, for instance, to destroy them, while surrounding healthy cells receive virtually no energy, obviating collateral damage from the treatment. The same



(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

- *with international search report (Art. 21(3))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

(88) Date of publication of the international search report:

13 February 2020 (13.02.2020)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 19/32539

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be searched, the appropriate additional search fees must be paid.

- Group I: Claim 1, 7-9, 11-13 drawn to a system for treating disease or a method to teleport energy including details of standing wave patterns or Fourier synthesis.
- Group II: Claims 2-6, drawn to a method of teleporting energy including details of a destination location.
- Group IV: Claim 10 drawn to a method using a source of energy capable of doing mechanical, electrical, thermodynamic, or other work.
- Group V: Claim 14 drawn to a method for teleporting energy from at least one source of energy to at least one energy target.
- Group VI: Claim 15 drawn to a system for producing constructive and destructive energy wave interference.
- Group VII: Claims 16, drawn to method of diagnosing disease.

--see extra sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
1 and 7-13
4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 19/32539

A. CLASSIFICATION OF SUBJECT MATTER

IPC - A61N 5/06; A61N 7/00 (2019.01)

CPC - A61N 1/323; A61N 5/06; A61N 7/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

See Search History document

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

See Search History document

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

See Search History document

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y --- A	US 2007/0191906 A1 (IYER et al.) 16 August 2007 (16.08.2007) Fig 1-3, 20, 23, abstract, para [0002], [0025], [0051], [0052], [0060]	1, 10 ----- 9, 11, 12 ----- 7, 8, 13
Y	US 2011/0066407 A1 (BUTSON et al.) 17 March 2011 (17.03.2011) abstract, para [0181]	9
Y --- A	US 2002/0099324 A1 (MELTON, JR., et al.) 25 July 2002 (25.07.2002) abstract, para [0027], [0035], [0036]	11, 12 ----- 7, 8, 13
A	US 2006/0103905 A1 (WALMSLEY) 18 May 2006 (18.05.2006) Fig 1, abstract, para [0028]-[0031]	7, 8
A	US 2003/0147812 A1 (UEBERIE) 07 August 2003 (07.08.2003) abstract, para [0091]-[0094], [0112]-[0118]	13
A	US 2010/0193407 A1 (STEINBERG et al.) 05 August 2010 (05.08.2010) abstract	13

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"D" document cited by the applicant in the international application	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"E" earlier application or patent but published on or after the international filing date	"&" document member of the same patent family
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

09 December 2019

Date of mailing of the international search report

30 DEC 2019

Name and mailing address of the ISA/US
Mail Stop PCT, Attn: ISA/US, Commissioner for Patents
P.O. Box 1450, Alexandria, Virginia 22313-1450
Facsimile No. 571-273-8300

Authorized officer

Lee Young

Telephone No. PCT Helpdesk: 571-272-4300

Continuation of Box No III -- Observations where unity of invention is lacking

The inventions listed in the above-mentioned groups do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

Special Technical Features

Group I includes the special technical features of treating disease or a medical condition including Fourier synthesis (claims 1, 11-13) or adjusting a phase of standing wave patterns so that standing wave patterns are in phase or to achieve Fourier synthesis (claims 7-9), not included in the other groups.

Group II includes the special technical feature of a destination location, wherein producing destructive interference, in at least one defined point in time and space located between the said at least one starting-location energy source and the said at least one destination location, wherein less energy density is measurable in a region of space containing said destructive interference, not included in the other groups.

Group IV includes the special technical feature of energy capable of doing said work, not included in the other groups.

Group V includes the special technical feature of the target produces heat, not included in the other groups.

Group VI includes the special technical feature of a first beam splitter and a second beam splitter, not included in the other groups.

Group VII includes the special technical feature of an energy detection instrument which quantifies the difference in the energy that was teleported and the energy after it is altered by interaction with the tissues in the said area of the said patient, not included in the other groups.

Common Technical Features:

The only technical features shared by Groups I, II, and IV-VI that would otherwise unify the groups, are an energy source, transporting/teleporting energy, constructive interference and destructive interference. However, these shared technical features do not represent a contribution over prior art, because the shared technical features are disclosed by US 2002/0099324 A1 to Melton et al. (hereinafter Melton).

The only additional technical feature shared by Groups I, II, and IV that would otherwise unify the groups, is a standing wave.

The only additional technical feature shared by Groups I, II and IV that would otherwise unify the groups, is a Fourier analysis.

The only additional technical feature shared by Groups I, II and VI that would otherwise unify the groups, is a body to be treated.

The only additional technical feature shared by Groups I and II that would otherwise unify the groups, is a adjusting a phase. However, this additional shared technical features do not represent a contribution over prior art, because the shared technical features are disclosed by Melton.

Melton discloses an energy source, transporting/teleporting energy (para [0009]: delivers the desired acoustic energy within a living being), constructive interference and destructive interference (para [0027]: pressure nodes and anti-nodes are found within the cavity which correspond to places where destructive and constructive interference of the acoustic waves occur), a standing wave (para [90035]: the resultant waveform is a standing wave), a Fourier analysis (para [0035]: Fourier transform of the pressure pulse...contains a multiplicity of frequency components), a body to be treated (para [0009]: delivers the desired acoustic energy within a living being) and adjusting a phase (para [0027]: adjusting the magnitude and/or phase of the waves).

As the common technical features were known in the art at the time of the invention, these cannot be considered special technical features that would otherwise unify the groups.

Therefore, Groups I, II, and IV-VII lack unity under PCT Rule 13.