



(51) International Patent Classification:

A61B 18/14 (2006.01) A61B 18/00 (2006.01)

A61M 25/00 (2006.01)

(21) International Application Number:

PCT/US2024/032814

(22) International Filing Date:

06 June 2024 (06.06.2024)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/506,574 06 June 2023 (06.06.2023) US

(71) Applicant: FRACTYL HEALTH, INC. [US/US]; 3 Van de Graaff Drive, Suite 200, Burlington, Massachusetts 01803 (US).

(72) Inventors: CAPLAN, Jay D.; c/o 3 Van de Graaff Drive, Suite 200, Burlington, Massachusetts 01803 (US). KOHEM, Thomas C.; c/o 3 Van de Graaff Drive, Suite 200, Burlington, Massachusetts 01803 (US). LESICA, Jeffrey; c/o 3 Van de Graaff Drive, Suite 200, Burlington, Massachusetts 01803 (US). MORNEAU, Sara A.; c/o 3 Van de Graaff Drive, Suite 200, Burlington, Massachusetts 01803 (US). CALABRESE, Andrew; c/o 3 Van de Graaff

Drive, Suite 200, Burlington, Massachusetts 01803 (US). KRALL, Alexander; c/o 3 Van de Graaff Drive, Suite 200, Burlington, Massachusetts 01803 (US). BIASEL-LA, Michael A.; c/o 3 Van de Graaff Drive, Suite 200, Burlington, Massachusetts 01803 (US). FLAHERTY, R. Maxwell; c/o 3 Van de Graaff Drive, Suite 200, Burlington, Massachusetts 01803 (US). FLAHERTY, J. Christopher; c/o 3 Van de Graaff Drive, Suite 200, Burlington, Massachusetts 01803 (US).

(74) Agent: FRANKLIN, Thomas A. et al.; Wolf, Greenfield & Sacks, P.C., 600 Atlantic Avenue, Boston, Massachusetts 02210 (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, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, MG, MK, MN, MU, 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, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(54) Title: TISSUE TREATMENT SYSTEM

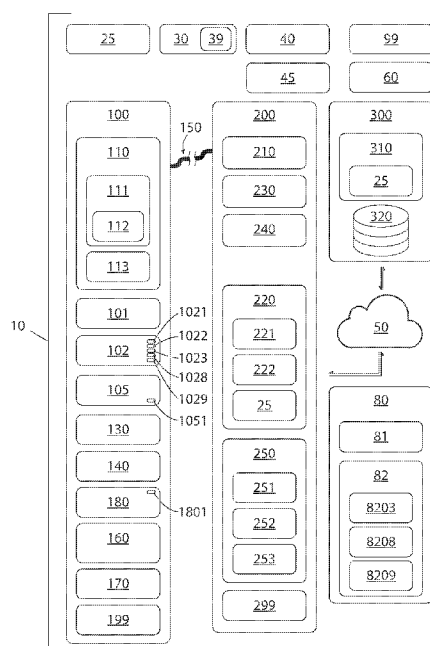


FIG. 1

(57) Abstract: Systems, devices, and methods for treating a medical condition of a patient are described. The system for treating a medical condition of a patient includes: a catheter for insertion into the intestine, the catheter having an elongate shaft with a distal portion; and a functional assembly positioned on the elongate shaft distal portion and including at least one treatment element. The at least one treatment element treats target tissue located in the small intestine of the patient by delivering electrical energy to the target tissue. The delivery of the electrical energy electroporates cells of the target tissue.



(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, 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, ME, 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).

Declarations under Rule 4.17:

— *of inventorship (Rule 4.17(iv))*

Published:

— *with international search report (Art. 21(3))*

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

03 April 2025 (03.04.2025)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 24/32814

A. CLASSIFICATION OF SUBJECT MATTER

IPC - INV. A61B 18/14, A61M 25/00 (2024.01)

ADD. A61B 18/00 (2024.01)

CPC - INV. A61B 18/14, A61B 18/1477, A61B 18/1482, A61B 18/1492, A61M 25/0067, A61M 25/0082

ADD. A61B 2018/00613, A61B 2018/0016, A61B 2018/00494, A61B 2018/1467

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	US 2018/0296264 A1 (Mayo Foundation for Medical Education and Research) 18 October 2018 (18.10.2018), entire document, especially Fig 2, Fig 4, para [0036]-[0037], para [0045]-[0049]	1
A	US 2021/0220045 A1 (Fractyl Laboratories, Inc) 22 July 2021 (22.07.2021), entire document, especially	1
A	US 2023/0071306 A1 (Intuitive Surgical Operations, Inc) 9 March 2023 (09.03.2023), entire document	1



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"D" document cited by the applicant in the international application

"E" earlier application or patent but published on or after the international filing date

"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

"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

"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

"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

"&" document member of the same patent family

Date of the actual completion of the international search

26 August 2024

Date of mailing of the international search report

OCT 01 2024

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

Kari Rodriguez

Telephone No. PCT Helpdesk: 571-272-4300

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 24/32814

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.: 2-49
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:

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.:
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.