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OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA,
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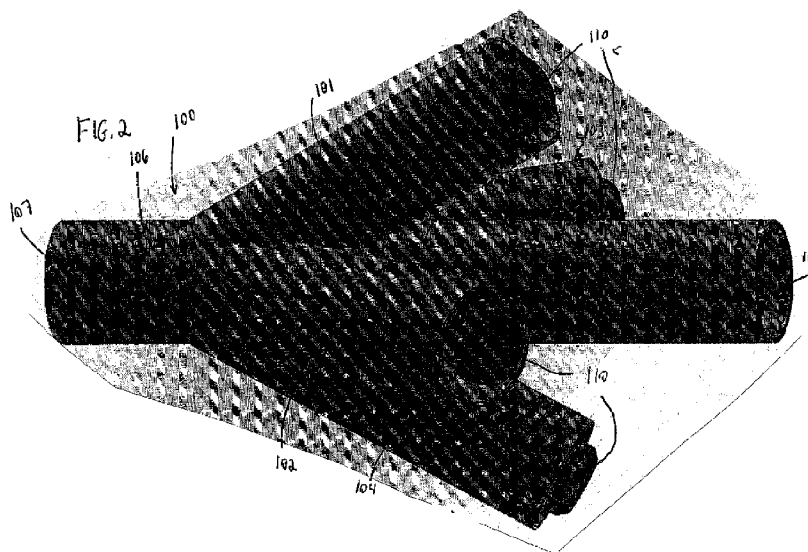
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(54) Title: ULTRASONIC ERADICATION OF SEA LICE ON FARMED FISH



(57) Abstract: A method, and device for removing sea lice from salmon with use of a salmon herding passage tube, with ultrasound transducers on the periphery thereof, in a number sufficient to provide ultrasound treatment of the salmon being herded therethrough at a normal herding rate and at a sufficiently high enough frequency to kill the sea lice. Salmon are herded therethrough, with the application of ultrasound from the ultrasonic The method and device also include removal of the lice from a salmon cage or enclosure with feeding fish into an enclosure having ultrasound transducers situated on the inner periphery thereof and providing an attraction such as a white light which attracts noxious parasitic aquatic organisms and applying ultrasound from the electronic transducers within the enclosure.



INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 16/51399

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A23L 3/30 (2017.01)

CPC - A23L 3/30

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)

IPC (8): A23L 3/30 (2017.01);

CPC: A23L 3/30

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

IPC (8): A23L 1/025 1/325 3/00 3/28 3/30 3/54, A22B 1/00, A22C 25/00 25/08, A01K 61/00 63/00 63/06 (2017.01);

CPC: A23L 1/025 1/325 3/00 3/28 3/30 3/54, A22B 1/00, A22C 25/00 25/08, A01K 61/00 63/00 63/06

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

Google (Web, Patents); PatBase; Search Terms Used: fish, salmon, lice, parasite, parasitic, herd, passage, conduit, tube, pipe, ultrasound, transducer, waves, frequencies, cavitation, acoustic, emit, farm, eradication, sea, treatment, steel, interior, absorb, sound, exterior, stainless, sterilization, USONIC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	WO 1994/17657 A1 (Jackman) 18 August 1994 (18.08.1994), entire document, especially Fig. 1; page 1, paragraph 1; page 4, paragraph 4; page 3, paragraph 1; page 2, paragraph 3;	1, 3 ----- 2, 4-14
Y	"Monitoring and potential control of sea lice using an LED-based light trap" (Flamarique et al.) [online] (retrieved from the internet on 22.02.2017) <URL http://www.grammarworksheets.com/essays/printable/salmon/lice.led.article.pdf >, 07 August 2009 (07.08.2009); entire document, especially Fig. 1, 2; page 2, col 1, paragraph 3; page 2, col 2, paragraph 4;	8-11, 14
Y	GB 2309621 A (FERRANTI-THOMSON SONAR SYSTEMS UK LIMITED) 06 August 1997 (06.08.1997), entire document, especially fig 4-5; pg 1, ln 1-11; pg 1, ln 17-19; pg 3, ln 16-27; pg 3, ln 28 - pg 4, ln 12; pg 4, ln 17-34	2, 4-5, 7, 9, 12
Y	US 5,810,566 A (Pauwels) 22 September 1998 (22.09.1998), entire document, especially fig 1; col 4, ln 7-19	6, 13
A	"Ultrasonic water treatment as an alternative means of controlling fish mortality caused by bucephalus polymorphus cercariae" (Wolber et al.) [online] (retrieved from the internet on 22.02.2017) <URL https://eafp.org/download/2004-Volume24/Issue%203/24_153.pdf >, January 2004 (01.2004); entire document	1-14
A	US 2005/0075587 A1 (Vago) 07 April 2005 (07.04.2005), entire document	1-14
A	US 2013/0050465 A1 (Beck) 28 February 2013 (28.02.2013), entire document	1-14
X, P	EP 2,962,556 A1 (Ardeo Technology AS) 06 January 2016 (06.01.2016), entire document	1-14

☐ Further documents are listed in the continuation of Box C.

* Special categories of cited documents:

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

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"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)

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"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

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Name and mailing address of the ISA/US

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