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(54) **Title**: A MINIATURE LAPAROSCOPIC LIGHT SOURCE

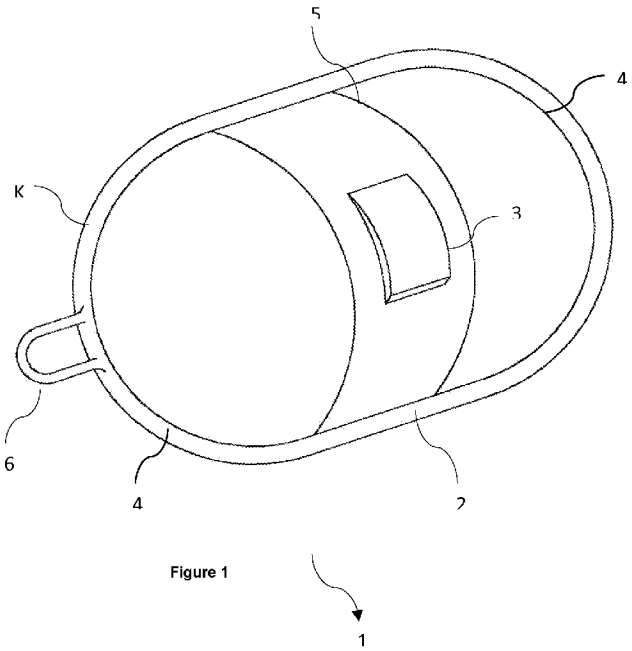

Figure 1

(57) **Abstract**: The present invention relates to a miniature laparoscopic light source which illuminates the tissues and/or organs with translumination (illuminating by giving light from the back) method during gastrointestinal and other operations. A miniature laparoscopic light source (1), which enables the tissues and/or organs to be illuminated with translumination technique in closed surgeries such as gastrointestinal operations, comprises a body (2) which includes all components thereon, an on/off switch (3) which enables the miniature laparoscopic light source (1) to be operated and turned off, a light source (4) which gives light to the operation area, at least one battery casing (5) wherein the power supply (such as cell, battery) which will provide energy required for the light source is fixed.

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A MINIATURE LAPAROSCOPIC LIGHT SOURCE

Field of the Invention

The present invention relates to a miniature laparoscopic light source which illuminates the tissues and/or organs with translumination (illuminating by giving light from the back) method during gastrointestinal and other operations.

Background of the Invention

Translumination (illuminating by giving light from the back) technique is used in order to determine the damaged parts or parts with cancer in the tissue and/or organs required to be removed with surgical intervention. Today, Translumination technique can only be used in open surgeries. During an open surgery, tissues and/or organs are examined by bringing them in front of a light source by hands or other instruments. The open surgeries elongating the recovery process cause problems for the patients. Small incisions made on the abdominal wall are used during closed surgeries, and there is no system present in the state of the art which illuminates the tissues or organs from the back.

United States Patent document no US4561430, one of the applications known in the state of the art, discloses a light source used in laparoscopy. The inventive light source has an elongated casing, a power supply contained in the casing, and a light source. The user looks through a sight tube included in an optic system. The said optic system enables the light coming from the light source to be directed towards to object wanted to be examined. However, the said invention is not suitable for illuminating with Translumination technique in the closed surgeries.

Japanese Patent document no JP2000245689, one of the applications known in the state of the art, discloses an auxiliary instrument for endoscope insertion. The said invention has a trocar capable of brightening and an optic fiber.

Summary of the Invention

The objective of the present invention is to provide a miniature laparoscopic light source which enables the tissue and/or organs to be illuminated by Translumination technique by entering inside the incisions made on the abdominal wall during closed surgeries whereas does not occupy the incisions used during surgery and made on the abdominal wall.

A further objective of the present invention is to provide a miniature laparoscopic light source which enables the part that is operated to be illuminated with Translumination technique during the whole operation in the closed surgeries.

Another objective of the present invention is to provide a miniature laparoscopic light source which does not give thermal energy to the tissue and/or organs while illuminating the tissue and/or organs.

Detailed Description of the Invention

"A miniature laparoscopic light source" developed to fulfill the objective of the present invention is illustrated in the accompanying figure wherein,

Figure 1 is the perspective view of the miniature laparoscopic light source.

The components in the figures are numbered individually, where the numbers refer to the following:

1. Miniature Laparoscopic Light Source
2. Body
3. On/Off switch
4. Light Source

5. Battery casing
6. Ring

K. Coating

A miniature laparoscopic light source (1), which enables the tissues and/or organs to be illuminated with translumination technique in closed surgeries such as gastrointestinal operations, comprising

- a body (2),
- an on/off switch (3) which enables the miniature laparoscopic light source (1) to be operated and turned off,
- a light source (4) which gives light to the operation area,
- at least one battery casing (5) wherein the power supply (such as cell, battery) which will provide energy required for the light source (4) is placed, and
- at least one ring (6) to which a string is tied in order to be pulled away after the surgery is completed.

The body (2) is a hollow cylindrical structure and contains the other components which constitute the inventive miniature light source (1) therein. In the preferred embodiment of the invention, the body (2) is made of stainless steel. The body (2) is coated with a material which does not harm the tissue and/or the organs. In the preferred embodiment of the invention, the coating (K) material is polypropylene.

The on/off switch (3) enables the inventive miniature laparoscopic light source (1) to be operated and turned off. In the preferred embodiment of the invention, the on/off switch (3) is located in the middle part of the body (2).

The light source (4) is a cold light source which is fixed to both ends of the body (2) with conventional methods and enables the tissue and/or the organs to be illuminated. In the preferred embodiment of the invention, the light source (4) is

LED (Light Emitting Diode). In other embodiments of the invention, any kind of cold light source can be used instead of LED.

The battery casing (5) is the part inside the body wherein the power supply providing energy to the light source is located. The connection of the power supply with the on/off switch (3) and the light source (4) is made with conventional methods.

The ring (6) is the extension to which the string (not shown in the figures) is tied in order to pull away the inventive miniature laparoscopic light source (1) from the abdominal cavity and remove via the trocar, and which is comprised of the coating (K) used on the body. In the preferred embodiment of the invention, the ring (6) is placed at the end part of one of the light sources.

The inventive miniature laparoscopic light source (1) enables the tissue and/or organs to be illuminated with translumination method in closed surgeries. The miniature laparoscopic light source (1), which is used during closed surgeries and transferred into the abdominal cavity from the incisions present on the abdominal wall through the trocars on the said incisions, is placed behind the organ and/or tissue to be operated. The miniature laparoscopic light source (1) placed behind the tissue and/or organ enables the tissue and/or the organs to be illuminated with translumination technique via the light it emits. The miniature laparoscopic light source (1) is removed from the abdominal cavity by being pulled via the string tied onto the ring (6) after the operation is completed. The inventive miniature laparoscopic light source (1) is used for single use and disposed after the operation or can be recycled.

It is possible to develop various embodiments of the inventive "miniature laparoscopic light source" (1). The invention can not be limited to the examples described herein and it is essentially as defined in the claims.

CLAIMS

1. A miniature laparoscopic light source (1), which enables the tissues and/or organs to be illuminated with translumination technique in closed surgeries such as gastrointestinal operations, **comprising**
   - a body (2),
   - an on/off switch (3) which enables the miniature laparoscopic light source (1) to be operated and turned off, and **characterized by**
   - a light source (4) which gives light to the operation area,
   - at least one battery casing (5) wherein the power supply (such as cell, battery) which will provide energy required for the light source (4) is placed, and
   - at least one ring (6) to which a string is tied in order to be pulled away after the surgery is completed.

2. A miniature laparoscopic light source (1) according to claim 1, **characterized by** a body (2) which is in the form of a hollow cylinder.

3. A miniature laparoscopic light source (1) according to any one of the claims 1 or 2, **characterized by** body (2) which is made of stainless steel.

4. A miniature laparoscopic light source (1) according to any one of the claim 2 or 3, **characterized by** body (2) which is coated with a material that does not harm the tissue and/or the organ.

5. A miniature laparoscopic light source (2) according to any one of the claims 2 or 3, **characterized by** body (3) which is coated with polypropylene.

6. A miniature laparoscopic light source (1) according to any one of the preceding claims, **characterized by** on/off switch (3) which is fixed on the middle part of the body (2).

7. A miniature laparoscopic light source (1) according to any one of the preceding claims, **characterized by** light source (4) which is fixed on both sides of the body (2).

8. A miniature laparoscopic light source (1) according to claim 7, **characterized by** light source (4) which is LED.

9. A miniature laparoscopic light source (1) according to claim 7, **characterized by** light source (4) which is a cold light source.

10. A miniature laparoscopic light source (1) according to any one of the preceding claims, **characterized by** on/off switch (5) which is fixed on the middle part of the body (2).

11. A miniature laparoscopic light source (1) according to claim 4 or 5, characterized by a ring (6) which is constituted by the coating material making an extension and used for stringing.

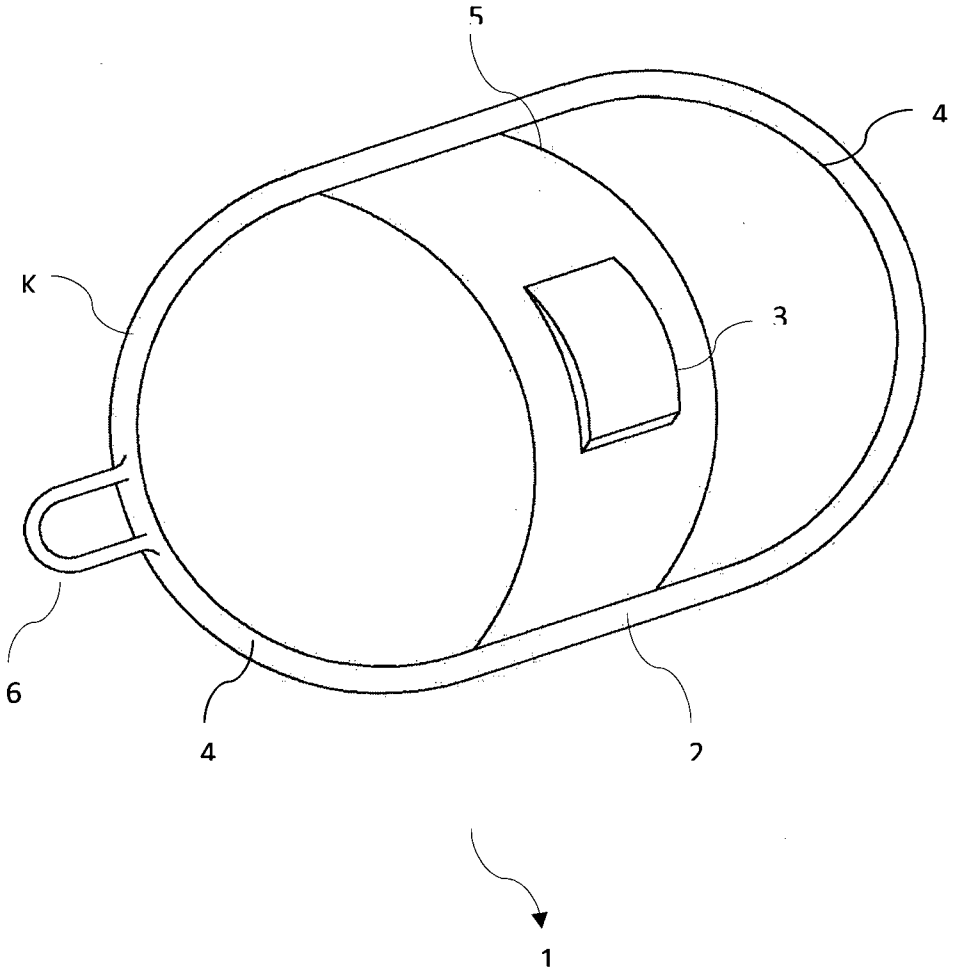

Figure 1

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2012/052670

A. CLASSIFICATION OF SUBJECT MATTER
INV. F21L4/00 A61B1/06
ADD.

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)
F21L A61B

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

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	GB 2 376 520 A (SAY NORMAN FRANCIS [GB]; SAY DUNCAN TAYLOR [GB]) 18 December 2002 (2002-12-18) see especially the second paragraph and figure 9 -----	1,2,7-9 4,5
X	DE 19 58 625 A1 (MEDICAL PRODUCTS CORP) 11 June 1970 (1970-06-11) see especially the paragraph bridging pages 1 and 2 as well as figure 1 -----	1-3
X	US 2007/230168 A1 (CUTLER-BASS JUDY [US]) 4 October 2007 (2007-10-04) paragraphs [0022], [0032]; figures 2,5 -----	1,2,6,8, 9
	-/--	

[X] Further documents are listed in the continuation of Box C.

[X] 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

"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	Date of mailing of the international search report
24 August 2012	03/09/2012

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Fischer, Martin

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INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2012/052670

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 03/063700 A1 (SICEL TECHNOLOGIES INC [US]; BLACK ROBERT D [US]; RINI CHRISTOPHER J [) 7 August 2003 (2003-08-07) page 11, paragraph 4 -----	4,5

1

Form PCT/ISA/210 (continuation of second sheet) (April 2005)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/IB2012/052670

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 2376520 A	18-12-2002	NONE	
DE 1958625 A1	11-06-1970	DE 1958625 A1	11-06-1970
		US 3579269 A	18-05-1971
US 2007230168 A1	04-10-2007	NONE	
WO 03063700 A1	07-08-2003	CA 2474359 A1	07-08-2003
		EP 1474038 A1	10-11-2004
		JP 2005515821 A	02-06-2005
		US 2003181794 A1	25-09-2003
		US 2006183979 A1	17-08-2006
		WO 03063700 A1	07-08-2003

专利名称(译)	微型腹腔镜光源		
公开(公告)号	EP2718614A1	公开(公告)日	2014-04-16
申请号	EP2012730635	申请日	2012-05-29
[标]申请(专利权)人(译)	KOC 大学		
申请(专利权)人(译)	KOC UNIVERSITESI		
当前申请(专利权)人(译)	KOC UNIVERSITESI		
[标]发明人	CANADINC DEMIRCAN CARILLI SENOL IBRAHIM		
发明人	CANADINC, DEMIRCAN CARILLI, SENOL, IBRAHIM		
IPC分类号	F21L4/00 A61B1/06		
CPC分类号	A61B1/0676 A61B1/3132 A61B90/30 A61B2017/00734 A61B2090/309 F21W2131/20 F21Y2115/10		
优先权	201105499 2011-06-06 TR		
外部链接	Espacenet		

摘要(译)

微型腹腔镜光源技术领域本发明涉及一种微型腹腔镜光源，其在胃肠道和其他操作期间通过透光（通过从背部提供光照射）方法照射组织和/或器官。一种微型腹腔镜光源（1），其能够在闭合手术例如胃肠手术中利用透照技术照射组织和/或器官，包括主体（2），其包括其上的所有部件，开/关开关（3）使微型腹腔镜光源（1）能够被操作和关闭，光源（4）向操作区域提供光，至少一个电池壳体（5），其中电源（例如电池，电池）它将提供光源所需的能量是固定的。