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Declarations under Rule 4.17:

- as to the identity of the inventor (Rule 4.17(i))
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

[Continued on next page]

(54) Title: SURGICAL STAPLE CARTRIDGES WITH DETACHABLE SUPPORT STRUCTURES

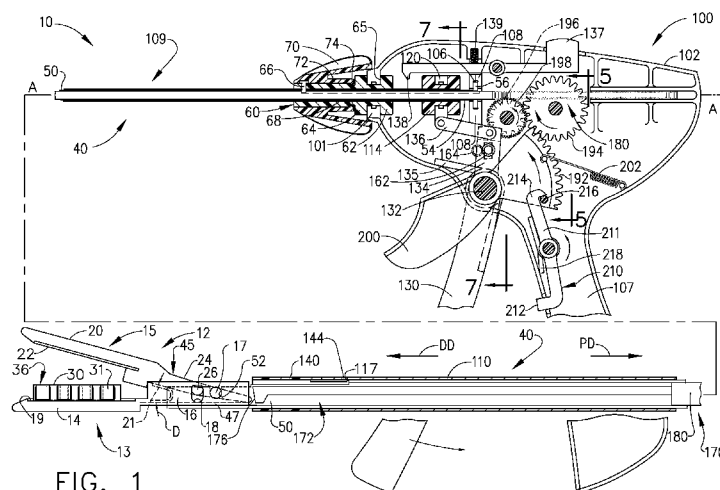


FIG. 1

(57) **Abstract:** Surgical staple cartridges and end effectors for surgical stapling instruments. In various embodiments, a cartridge support member is coupled to a portion of an implantable staple cartridge body. The cartridge support member is configured to be removably coupled to an elongated channel portion of a surgical instrument. When the stapling process has been completed, the implantable cartridge body remains stapled to the tissue and is separated from the cartridge support member which remains affixed to the elongated channel to provide the surgeon with an indication that no cartridge is present within the elongated channel. In other embodiments, a closure lockout arrangement is provided to prevent the advancement of a closure member to a fully fired position when a staple cartridge is not present within the end effector.

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- *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))*

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2011/053580

A. CLASSIFICATION OF SUBJECT MATTER
INV. A61B17/072
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)
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)

EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 662 260 A (YOON INBAE [US]) 2 September 1997 (1997-09-02) figures 2,3-5	1,3-6,8, 11,14, 15,17
A	----- WO 96/22055 A1 (YOON INBAE [US]) 25 July 1996 (1996-07-25) pages 8-11	1-10
A	----- EP 1 790 294 A1 (MAX CO LTD [JP]) 30 May 2007 (2007-05-30) paragraphs [0025] - [0039]	1-10
X	----- EP 1 813 199 A1 (ETHICON ENDO SURGERY INC [US]) 1 August 2007 (2007-08-01) paragraphs [0073] - [0074]; claim 1; figures 1,3 ----- -/--	11, 13-16, 18,20



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

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

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"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

11 May 2012

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2011/053580

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:

see additional 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 an 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.

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2011/053580

G(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2010/198220 A1 (BOUDREAUX CHAD P [US] ET AL) 5 August 2010 (2010-08-05) paragraphs [0141] - [0142]; claim 1; figures 1-3 -----	11, 13-16, 18,20
X	US 5 413 267 A (SOLYNTJES ALAN J [US] ET AL) 9 May 1995 (1995-05-09) columns 15-16; claim 1; figures 2-3 -----	11, 13-16,19
A	WO 95/23557 A1 (MINNESOTA MINING & MFG [US]) 8 September 1995 (1995-09-08) the whole document -----	1-20

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2011/053580

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			WO 9523557 A1	08-09-1995

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-10

A surgical staple cartridge comprising: a compressible cartridge body supporting a plurality of unformed staples therein; and a cartridge support member coupled to said compressible cartridge body, said cartridge support member configured for removable attachment to a portion of an end effector of a surgical staple instrument such that after said unformed staples in said cartridge body are formed, said cartridge body and staples are removable from the end effector without detaching the cartridge support member therefrom.

2. claims: 11-17

An end effector for use in connection with a surgical instrument, said end effector comprising: an elongated channel couplable to a portion of the surgical instrument; a staple cartridge comprising: a compressible cartridge body supporting a plurality of unformed staples therein; and a cartridge support member coupled to said compressible cartridge body and being removably couplable to said elongated channel and wherein said end effector further comprises an anvil movably supported relative to said elongated channel and having a staple forming surface thereon, said anvil configured to move from an open position wherein said staple forming surface is spaced from said staple cartridge into closed positions wherein said anvil is moved into compressing contact with said staple cartridge in response to firing motions applied thereto by the surgical instrument to form said unformed staples in said cartridge body.

3. claims: 18-20

An end effector for attachment to a surgical instrument that has a movable closure member supported thereon for transmitting closure forces to the end effector, said end effector comprising: an elongated channel coupled to a portion of said surgical instrument for removably supporting a surgical staple cartridge therein; an anvil movably supported relative to said elongated channel and being movable from an open position to closed positions relative to said elongated channel upon applications of closure motions thereto by the movable closure member; and a closure lockout operably supported within said elongated channel and movable from an unlocked position when a staple cartridge is supported in said elongated channel to a locked position when no staple cartridge is supported in said elongated channel, said closure lockout configured to interact with

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

said closure member to prevent application of at least some
of said closure motions to said anvil when said closure
lockout is in said locked position.
