Abstract:
The inventive subject matter is directed to a multimode electrosurgical system having an electrosurgical instrument with a first electrode configuration that operates in a bipolar mode and second electrode configuration that operates in a monopolar mode. In other embodiments, the inventive subject matter is directed to an instrument and system that provide multiple modes of surgical and/or therapeutic treatments, at least one being an electrosurgical mode of treatment, the instrument including at least one active electrode on a working portion, and the working portion including or supporting at least one non-electrosurgical functional element, the instrument including at least one operational return electrode configuration of selectively variable surface area.

Title: ELECTROSURGICAL INSTRUMENTS WITH MULTIMODES OF OPERATION

FIG. 1

[Diagram of an electrosurgical instrument with multiple configurations and components, including electrode connections and labels such as C1, C2, C3, and C4.]
## A. CLASSIFICATION OF SUBJECT MATTER

<table>
<thead>
<tr>
<th>IPC(8)</th>
<th>USPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>A61B 18/08, 18/12, 18/14 (2014.01)</td>
<td>606/32, 34, 48</td>
</tr>
</tbody>
</table>

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)

<table>
<thead>
<tr>
<th>IPC(8)</th>
<th>USPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>A61B 18/00, 18/04, 18/08, 18/10, 18/12, 18/14 (2014.01)</td>
<td>606/32, 34, 35, 48, 50; CPC - A61B 18/00, 18/04, 18/08, 18/082, 18/12, 18/14</td>
</tr>
</tbody>
</table>

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

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>US 2009/0248022 A1 (FALKENSTEIN, Z et al.) 01 October 2009; paragraphs [0022]-[0024], [0156], [0161], [0165], [0177], [0218], [0221], [0226], [0230], [0232], [0247], [0261], [0268], [0270], [0289], [0300]-[0301], [0312], [0318], [0389], [0398].</td>
<td>1-2, 4, 16-20, 23-24</td>
</tr>
<tr>
<td>Y</td>
<td>WO 2003/035322 A1 (AUGE, II, W K et al.) 18 December 2003; figure 13; page 34, lines 6-9; page 35, lines 26-28; page 36, lines 19-23</td>
<td>11, 21-22, 25A</td>
</tr>
<tr>
<td>Y</td>
<td>US 6,355,032 B1 (HOVDA, DC et al.) 12 March 2002; column 9, lines 34-67; column 10, lines 1-5; column 13, lines 18-27; column 17, lines 7-48</td>
<td>21-22</td>
</tr>
<tr>
<td>Y</td>
<td>US 6,100,898 B2 (GREGG, WN) 24 January 2012; figure 1; column 3, lines 45-54; column 8, lines 19-21</td>
<td>25A</td>
</tr>
</tbody>
</table>

Further documents are listed in the continuation of Box C.

---

### Date of the actual completion of the international search

**30 September 2014 (30.09.2014)**

### Date of mailing of the international search report

**23 OCT 2014**

### 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. 571-273-3201

### Authorized officer:

Shane Thomas
PCT Helpdesk: 571-272-4300
PCT OSP: 571-272-7774
INTERNATIONAL SEARCH REPORT

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 examined, the appropriate additional examination fees must be paid.

Group I: Claims 1-2, 4, 11, 16-24, and 25A are directed toward a multimode electrosurgical system.

Group II: Claims 3, 5-10, 12-15, and 25B are directed toward an instrument configured to provide multiple modes of surgical and/or therapeutic treatments.

Group III: Claims 26 is directed toward a method of liposuction and skin tightening.

---Continued Within the Next Supplemental Box.***.

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. [x] 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.:

   Group I: Claims 1-2, 4, 11, 16-24, and 25A

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.
Claims 25 appears to contain 2 separate and distinct claims. For purposes of the above claim groupings, the first two lines of Claim 25 (drawn to the system of claim 2) are interpreted as 25A, and the remaining lines of Claim 25 (drawn to the instrument of claim 3) are interpreted as 25B.

The inventions listed as Groups I-III 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: the special technical features of Group I include an electrosurgical instrument having a working portion with a first electrode configuration that operates in a bipolar mode and second electrode configuration that operates in a monopolar mode; and the electrode configuration comprising an active electrode and a plurality of return electrodes, each return electrode being separately addressable, which are not present in Groups II-III; the special technical features of Group II include an electrosurgical instrument including at least one active electrode on a working portion and the working portion including or supporting at least one non-electrosurgical functional element; and the instrument including a return electrode configuration of selectively variable surface area, which are not present in Groups I and III; the special technical features of Group III include a method of liposuction and skin tightening comprising inserting a working portion of an instrument into subdermal fatty tissue, the working portion having an active electrode and at least one return electrode, the return electrode having a surface being oriented towards an epidermal layer when the active electrode is oriented toward the fatty tissue; energizing the active electrode; and controlling the temperature at the epidermal tissue within a range to effect skin tightening, which are not present in Groups I-II.

The common technical features of Groups I-III are a multimode electrosurgical system; an electrosurgical instrument, the instrument including at least one active electrode on a working portion; and electrode configuration comprising an active electrode and return electrode.

These common technical features are disclosed by US 6,355,032 to Hovda, et.al. (hereinafter "Hovda"). Hovda discloses a multimode electrosurgical system (a system for selective electrosurgical treatment of body structures (an electrosurgical system) using multiple loop electrodes which can have different configurations (a multimode, different configurations=modes); title: column 3, lines 5-10; column 20, lines 24-40); an electrosurgical instrument (an electrosurgical instrument; column 3, lines 15-18); the instrument including at least one active electrode on a working portion (electrosurgical instrument with electrode terminals, including an active electrode, that can be submerged within the gel during a procedure; column 3, lines 45-50; column 10, lines 60-67); an electrode configuration (high frequency voltage is applied between the electrode terminal(s) and one or more return electrode(s); column 3, lines 45-50) comprising an active electrode (electrode terminal has active electrode; claims 1, 7) and return electrode (one or more return electrodes; claim 1).

Since the common technical features are previously disclosed by Hovda, these common features are not special and so Groups I-III lack unity.