

The opinion in support of the decision being entered today was not written
for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GUY BLALOCK and KEVIN G. DONOHOE

Appeal No. 2006-0216
Application No. 10/325,203

ON BRIEF

Before GARRIS, KRATZ and FRANKLIN, Administrative Patent Judges.
GARRIS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal which involves claims 22-44.

The subject matter on appeal relates to a method of operating a plasma chamber which comprises energizing a coil with a waveform having a voltage profile that is a function of the length of the coil and varying the voltage profile to achieve a maximum coupling (i.e., with a gas in the chamber) at a desired point. The step of

varying the voltage profile may occur prior to a process (e.g., see independent claim 22) or during a series of processes (e.g., see independent claim 38). This appealed subject matter is adequately represented by independent claims 22 and 38 which read as follows:

22. A method of operating a plasma chamber, comprising:

inputting at least one gas into a chamber;

energizing a coil located within a coupling distance of said gas with a waveform having a voltage profile that is a function of the length of said coil; and

varying the voltage profile prior to a process to achieve a maximum coupling at a desired point.

38. A method of operating a plasma chamber during a series of processes, comprising:

inputting at least one gas into a chamber;

energizing a coil located within a coupling distance of said gas with a waveform having a voltage profile that is a function of coil length and a first value of a circuit parameter; and

energizing said coil with a waveform having a voltage profile that is a function of coil length and a second value of said circuit parameter.

The references set forth below are relied upon by the examiner in the § 102 and § 103 rejections before us:

Holland et al. (Holland)	5,800,619	Sept. 1, 1998 (filed Jun. 10, 1996)
Collins et al. (Collins)	6,545,420	Apr. 8, 2003 (filed Jun. 6, 1995)

Claims 22-24, 29-32, 37-39 and 41-43 are rejected under 35 U.S.C. § 102(e) as being anticipated by either Holland or Collins.

Claims 25-28, 33-36, 40 and 44 are rejected under 35 U.S.C. § 103(a) as being unpatentable over either Holland or Collins.

We refer to the brief and reply brief and to the answer for a thorough discussion of the opposing viewpoints expressed by the appellants and by the examiner concerning the above noted rejections.

OPINION

Notwithstanding a thorough consideration of the arguments advanced in the brief and reply brief,¹ we will sustain each of the rejections advanced on this appeal for the reasons set forth below.

¹ According to recently-promulgated regulation 37 CFR 41.37(c)(1)(vii), in the argument section of an appeal brief, “[a]ny claim argued separately should be placed under a subheading identifying the claim by number”. This provision has not been followed by the appellants in their brief (or reply brief) such that it is unclear whether certain of the commonly rejected claims on appeal were meant to be separately argued by the appellants and thus separately considered by the Board. Because the brief was filed (April 4, 2005) less than 7 months after the aforementioned regulation became effective (i.e., September 13, 2004) and to ensure that the appellants receive their administrative due process rights, the failure to fully comply with our regulatory provision will be disregarded to the extent that we will consider individual claims which have been specifically identified in the presentation of a particular argument. These are

The § 102 Rejections

For the reasons more fully explained in the answer, each of the Holland and Collins references anticipatorily satisfies the energizing, varying and controlling steps recited in appealed independent claims 22, 30, 38 and 41. The appellants' arguments to the contrary simply are not compatible with the disclosures of these references. For example, see Holland at lines 52-65 in col. 7, lines 54-62 in col. 8, lines 20-30 and lines 43-49 in col. 9, and lines 11-20 in col. 10 as well as Collins at lines 1-12 in col. 8, lines 49-67 in col. 12, lines 11-20 in col. 13 and line 44 in col. 17 through line 16 in col. 18.

Particularly in the reply brief, the appellants seem to implicitly acknowledge that the reference methods include adjustments of the type under consideration in order to obtain a plasma which is uniform (e.g., see the last sentence in the abstract of Holland) or optimized (e.g., see lines 10-11 in col. 18 of Collins). Nevertheless, the appellants argue that, after this adjustment has been made and the desired plasma has been obtained, "no further adjustment would be necessary" (reply brief, page 3). This argument is irrelevant

independent claims 22, 30, 38 and 41 for the § 102 rejections and dependent claims 40 and 44 for the § 103 rejections.

with respect to independent claims 22 and 30 since these claims do not require more than a single adjustment. That is, these independent claims merely require that the respective varying and controlling steps thereof be performed “prior to a process” (emphasis added).

While independent claims 38 and 41 recite a method of operating a plasma chamber during a series of processes by energizing at first and second values, the above noted argument, though relevant, nevertheless is unpersuasive. This is because the teachings of the applied references are directed to a variety of processes such as an etching process and a deposition process (e.g., see Holland at lines 52-59 in col. 6 and Collins at the penultimate sentence of the abstract). Thus, in each reference, the adjusting step necessary to achieve a uniform or optimized plasma would be made prior to the etching process and the deposition process respectively. This would satisfy the here claimed requirements involving first and second values during a series of processes.

In light of the foregoing, we hereby sustain the examiner’s § 102 rejections of claims 22-24, 29-32, 37-39 and 41-43 as being anticipated by either Holland or Collins.

The § 103 Rejections

Concerning these rejections, the appellants argue that “the Examiner is completely silent about how the two-step energization in claims 40 and 44 is taught or suggested in the cited references” (brief, page 5 and page 6).

As previously indicated, both Holland and Collins disclose performing their adjustment steps for obtaining a uniform or optimized plasma prior to a variety of processes including etching and deposition processes. After repeatedly conducting such processes, contaminating residue builds up to a point where a cleaning step becomes necessary. Therefore, it would have been obvious for an artisan to perform a cleaning operation, for example, between the aforementioned etching and deposition processes.²

This provision would have resulted in etching and deposition processes in accordance with Holland or Collins (i.e., wherein adjustments are made for each process in order to obtain a uniform or optimized plasma) with a cleaning operation therebetween. It is important to recognize that the adjusting step for the etching process would be prior to the cleaning operation (and correspondingly the cleaning operation would be prior to the deposition process). Because the adjusting step for the etching process would be prior to the cleaning operation, this step would satisfy the here claimed requirement “wherein said second energizing step is performed ... before ... cleaning” (i.e., since claims 40 and 44 do not require that this step be performed immediately before cleaning).

² Indeed, on page 2 of the subject specification, the appellants acknowledge that such a cleaning operation was known in the prior art at the time their invention was made.

In addition, we share the examiner's conclusion that it would have been obvious for an artisan to practice the adjusting steps of Holland or Collins during the etching and deposition processes disclosed therein so as to restore a degraded plasma to the uniform or optimized condition desired by these references. The result of this provision would satisfy the here claimed requirement "wherein the first energizing step is performed during a [etching or deposition] process".

For the above stated reasons, we also hereby sustain the examiner's § 103 rejections of claims 25-28, 33-36, 40 and 44 as being unpatentable over either Holland or Collins.

SUMMARY

We have sustained each of the § 102 and § 103 rejections advanced on this appeal.

The decision of the examiner is affirmed.

Appeal No. 2006-0216
Application No. 10/325,203

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv).

AFFIRMED

BRADLEY R. GARRIS)
Administrative Patent Judge)
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) BOARD OF PATENT
PETER F. KRATZ) APPEALS
Administrative Patent Judge) AND
) INTERFERENCES
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BEVERLY A. FRANKLIN)
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Comment [jvn1]: Type address

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