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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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84386	7590	11/09/2011	EXAMINER	
Daniels Patent Law PLLC 43 Centre Street Concord, NH 03301			CHANG, SUNRAY	
			ART UNIT	PAPER NUMBER
			2121	
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			11/09/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No. 12/479,410	Applicant(s) FILIP, ROMEO	
Examiner SUNRAY CHANG	Art Unit 2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 09 September 2011.
- 2a) This action is **FINAL**.
- 2b) This action is non-final.
- 3) An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) Claim(s) 1-15 is/are pending in the application.
5a) Of the above claim(s) 16-19 is/are withdrawn from consideration.
- 6) Claim(s) _____ is/are allowed.
- 7) Claim(s) 1-15 is/are rejected.
- 8) Claim(s) _____ is/are objected to.
- 9) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 10) The specification is objected to by the Examiner.
- 11) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 20110909 20111017.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application
- 6) Other: _____.

Art Unit: 2121

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Examiner's Detailed Office Action

- This Office Action is responsive to documents filed on 09/09/2011;
- Claims 16 – 19 have been withdrawn in the amendment filed on 03/07/2011 responsive to a restriction requirement;
- Claims 1 – 15 are amended and presented for examination.

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted to disclose 37 C.F.R. 1.56 all pertinent information and material pertaining to the patentability of applicant's claimed invention, on 09/09/2011 and 10/17/2011 have been considered by the examiner.

Response to Amendment and Arguments

2. Applicant agrees the first two references, **Dundorf** and **Estape**, generally show that etching and cutting work materials with a laser are known, however, indicating the references still lack of "cutting petroleum based foam such as polyurethane foam which is entirely different from known conventional laser cutting technology", which is agreed, however, it's not in the claims. Applicant broadly claims for "foam material" which includes a plurality types of "foam material" including the foam board as disclosed in **Dundorf** and **Estape**.

3. **Dundorf** detail describes producing carved signs using computer controlled carving tools, and the carving tool being described can be a laser and a gantry-type carving tool mounted over a vacuum type work table, controlling the cutting depth of the laser beam ... precise energy

Art Unit: 2121

of the cutting process utilized so that precise cutting depths can be obtained; **Risser** was cited for teaching a method to focus a laser beam to a smaller spot size for engraving and/or cutting; and **Estate** was cited for teaching using a computerized laser cutter to cut images into the surface of a foam panel which is well known as indicated in the office action;

4. Because of the amendments to the independent claims, the “mirror power selected and the thickness of the selected foam material” is to be considered in arranging the foam material, a new reference “Laser Engraving and Cutting System menu”, filed as IDS on 09/09/2011, has been considered in teaching different “Focus Lens Kits” providing different spot sizes and different focal ranges, this laser system can be used to replace **Dundorf**’s laser system to consider “different spot sizes and different focal ranges” in arranging the foam to be processed.

5. Applicant unofficially proposed amendments will be considered when they are officially filed into the system.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

Art Unit: 2121

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
6. **Claims 1 – 10 are rejected** under 35 U.S.C. 103(a) as being unpatentable over Dundorf et al. (U.S. Patent No. 5,197,013, hereinafter, **Dundorf**), in view of Estape (U.S. P.G.Pub. No. 2004/0128932, hereinafter, **Estape**) and Risser et al. (U.S. Patent No. 7,060,934, hereinafter, **Risser**), further in view of Universal Laser Systems (M-300 Laser Engraving and Cutting System, hereinafter, **M-300**).

Regarding claims 1 and 10,

Dundorf substantially teaches,

- A method of cutting a protective foam material (foam board, see col. 24, lines 8 – 15) to match a predetermined design template (method and apparatus for producing carved signs using computer, see col. 1, lines 9 – 12, CAD, see col. 5, lines 25 – 53) with a laser (laser as the carving tool, see col. 24, line 54 – col. 25, line 19), the method comprising the steps of:
- inputting the predetermined design template into a computer memory connected (a desired mathematical representation is provided to a CAM system including a CNC machining tool having a carving tool, see col. 5, lines 31 – 53; see further in col. 8, lines 37 – 64) with a laser controller (laser as the carving tool, see col. 24, line 54 – col. 25, line 19);
- selecting a desired thickness of protective foam material as defined between a front surface and rear surface of the foam material (note, as defined in Specification Pp[0049], “a choice of thickness of foam must be made by the user”, therefore, this selecting step is performed by a user, and without further limited on how to select, therefore **Dundorf** teaches a typical type signboard in col. 7, lines 49 – 62) can be treated as “selecting a desired thickness of

Art Unit: 2121

protective foam material”) into which the predetermined design template is to be cut with the laser (laser as the carving tool, see col. 24, line 54 – col. 25, line 19);

- selecting a mirror power for the laser which defines a focal point of the laser at a desired distance from the laser along a beam axis (controlling the cutting depth of the laser beam, see col. 25, lines 11 – 13; note, it is well known that focal point of a laser beam is exactly the cutting point; in the specification, “selecting a mirror power” seems to switching corresponding mirrors for different focal points, and **M-300** is further cited below for teaching the specific Laser System which teaches “selecting a mirror power”);
- supporting the selected foam material adjacent an output of the laser; and arranging the protective foam material adjacent the output of the laser and along the beam axis and aligning the focal point of the laser at an intermediate point between the front surface and the rear surface of the foam material (a gantry-type carving tool mounted over a vacuum type work table, See col. 49 – 51); and energizing the laser to cut the predetermined design template into the protective foam (controlling the cutting depth of the laser beam ... precise energy of the cutting process utilized so that precise cutting depths can be obtained, see col. 25, lines 10 – 19).

Dundorf detail describes producing carved signs using computer controlled carving tools, and the carving tool being described can be a laser, but **Dundorf** does not describe the steps in controlling laser beam focusing;

Risser has been further cited for teaching a method to focus a laser beam to a smaller spot size for engraving and/or cutting (see at least col. 2, lines 28 – 38 and col. 2, line 64 – col. 3, line 29);

Art Unit: 2121

Further, **Estape** has been cited for teaching using a computerized laser cutter to cut images into the surface of a foam panel which is well known (see Abstract, Pp[0059], fig. 2);

M-300 was filed as IDS on 09/09/2011, **M-300** teaches a Laser Engraving and Cutting System (Title) which specifically teaches “Focus Lens Kits” which can be selected to produce different spot sizes and different focal ranges (see page 71/74); and combined with **Dundorf** in arranging the protective foam material adjacent the output of the laser and along the beam axis and aligning the focal point of the laser at an intermediate point between the front surface and the rear surface of the foam material based on mirror power selected and the thickness of the selected form material (see the tables listed in Section 5 “Material Setting Guide” in pages 36/74 – 57/74 for different material)

It would have been obvious to a person of ordinary skill in the art at the time of applicant’s invention to modify the teaching of **Dundorf** to include “a method to focus a laser beam to a smaller spot size for engraving and cutting a foam panel”, for the purpose of providing high resolution and power density of the laser beam (see **Risser**, col. 1, lines 14 – 16) and using a computerized laser cutter to cut images into the surface of a foam panel (see Abstract, Pp[0059], fig. 2).

Regarding claim 2, Dundorf teaches the method as set forth in claim 1, further teaches the step of providing a planar support for the foam material that is adjustable relative to the cutting device along an axis parallel with the beam axis (a gantry-type carving tool mounted over a vacuum type work table, See col. 49 – 51); and energizing the laser to cut the predetermined

Art Unit: 2121

design template into the protective foam (controlling the cutting depth of the laser beam ... precise energy of the cutting process utilized so that precise cutting depths can be obtained, see col. 25, lines 10 – 19).

Regarding claim 3, Dundorf teaches the method as set forth in claim 2, further indicates cutting entirely through the foam material is well known (cut-out, see col. 2, lines 13 – 20).

Regarding claim 4, Dundorf teaches the method as set forth in claim 2, further indicates cutting partially through the foam material (see fig. 3B).

Regarding claim 5, Dundorf teaches the method as set forth in claim 1, further teaches the step of adjusting the focal point of the laser to an intermediate point in the foam material where the focal point of the laser is closer to the rear surface of the foam material than the front surface (controlling the cutting depth of the laser beam ... precise energy of the cutting process utilized so that precise cutting depths can be obtained, see col. 25, lines 10 – 19, Fig. 3B; a laser beam of sufficient energy to burn away wood or other material can be controllably moved simultaneously, see col. 24, lines 58 – 68)).

Regarding claim 6, Dundorf teaches the method as set forth in claim 5, further teaches the step of arranging the focal point of the laser at a point **relative** to the rear surface of the foam material where residual laser energy beyond the focal point of the beam completes cutting through the foam material (controlling the cutting depth of the laser beam ... precise energy of

Art Unit: 2121

the cutting process utilized so that precise cutting depths can be obtained, see col. 25, lines 10 – 19, cut-out, see col. 2, lines 13 – 20; a laser beam of sufficient energy to burn away wood or other material can be controllably moved simultaneously, see col. 24, lines 58 – 68)).

Regarding claim 7, Dundorf teaches the method as set forth in claim 6, further teaches the step of completely cutting through the entire thickness of the foam material in a single pass of the laser across the foam material (controlling the cutting depth of the laser beam ... precise energy of the cutting process utilized so that precise cutting depths can be obtained, see col. 25, lines 10 – 19, Fig. 3B; a laser beam of sufficient energy to burn away wood or other material can be controllably moved simultaneously, see col. 24, lines 58 – 68).

Regarding claim 8, Dundorf teaches the method as set forth in claim 7, further teaches the step of completely cutting through the foam material without any change or adjustment of the foam material relative to the output of the laser along the beam axis (controlling the cutting depth of the laser beam ... precise energy of the cutting process utilized so that precise cutting depths can be obtained, see col. 25, lines 10 – 19, cut-out, see col. 2, lines 13 – 20; a laser beam of sufficient energy to burn away wood or other material can be controllably moved simultaneously, see col. 24, lines 58 – 68).

Regarding claim 9, Dundorf teaches the method as set forth in claim 4, further teaches the step of adjusting the speed of the laser in accordance with at least one of the density of the foam and the desired depth of the material to be cut (feed speed, see col. 21, lines 19 – 22;

Art Unit: 2121

controlling the cutting depth of the laser beam ... precise energy of the cutting process utilized so that precise cutting depths can be obtained, see col. 25, lines 10 – 19, cut-out, see col. 2, lines 13 – 20; a laser beam of sufficient energy to burn away wood or other material can be controllably moved simultaneously, see col. 24, lines 58 – 68; note, spindle speed corresponding to power, moving speed corresponding to feed speed).

7. **Claims 11 – 15 are rejected** under 35 U.S.C. 103(a) as being unpatentable over **Dundorf**, in view of **Estape, Risser and M-300**, further in view of Sutula et al. (U.S. P.G.Pub. No. 2002/0114537, hereinafter, **Sutula**).

Regarding claims 11 – 15,

Dundorf teaches the method of claim 10, however does not teach providing instructions to an end user to trace an outline of the item to be protected on a sheet of paper, and to forward the outline of the item and at least one of a height and thickness value of the item to a manufacturer.

Sutula has been further cited for teaching a business method (e-machining service) for receiving designs through order forms from customers to manufacture product (see Pp[0051] and fig. 9, 17; note, based on applicant's specification, fig. 11, it is claiming a customer order form herein)

Sutula further teaches modifications by the manufacturer on customer's design (see Pp[0051]) as claimed in claims 12 – 15;

Art Unit: 2121

Further, claims 11 – 15 are detail claimed in different inventive scope compared with claims 1 – 9; for example, submit design order form, changing the design on the order form, are related with pre-process, away from manufacture process, controlling of the laser, as claimed in claims 1 – 9.

Applicants are respectfully suggested to elect one of the two manufacture process to be examined hereinafter or combining them together making them to be in one manufacture process steps.

Conclusion

8. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Correspondence Information

9. Any inquires concerning this communication or earlier communications from the examiner should be directed to Sunray Chang, who may be reached Monday through Friday, between 6:00 a.m. and 3:00 p.m. EST. or via telephone at (571) 272-3682 or facsimile transmission (571) 273-3682 or email sunray.chang@uspto.gov.

If you need to send an Official facsimile transmission, please send it to (571) 273-8300.

Application/Control Number: 12/479,410

Page 11

Art Unit: 2121

If attempts to reach the examiner are unsuccessful in the regular office hour, the Examiner's Supervisor, Albert Decady, may be reached at (571) 272-3819.

Sunray Chang

Art Unit 2121

/ALBERT DECADY/

Supervisory Patent Examiner, Art Unit 2121

November 7, 2011
