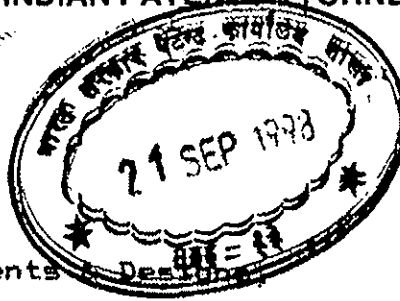


①

**CHANDRAKANT M. JOSHI**  
**INDIAN PATENT ATTORNEYS**

PT/8248



PATENT & TRADE MARK ATTORNEYS  
MEMBER: INTERNATIONAL BAR ASSOCIATION

02/09/98  
501, Vishwa Nanak, Chakala Road,  
Andheri (East), Mumbai-400 099.

Tel.: 838 - 0848, 820-5425, 838-9839  
Fax: (022) 838-0737, (022) 806-8294

The Controller of Patents  
Mumbai.

Dear Sirs,

Subject : Patent Registration Application

Invention : A PROCESS OF MANUFACTURING  
CUTLERY AND GOLD ORNAMENTS  
THROUGH LASER TECHNOLOGY

Applicant : BHARAT BHOGILAL PATEL



Under the instruction of our client, we are forwarding herewith application for Patent registration with enclosures. We request you to Patent the invention under the Patent Act 1970.

1. Form No. 1 in Triplicate.
2. Complete Specification in quadruplicate with drawings.
3. Form No 6.
4. Letter Of Authority in form GP .
5. Requisite Fee

Thanking you,

Yours truly,

CHANDRAKANT M. JOSHI  
PATENT & TRADE MARK ATTORNEYS.

RMID - 2

702

GOVERNMENT OF INDIA  
PATENT OFFICE BRANCH  
TODI ESTATES, THIRD FLOOR,  
SUN MILL COMPOUND, LOWER PAREL(WEST),  
MUMBAI-400 013

Tel. No. : 492 4058  
492 5092  
496 1370  
Telegram : PATOFFICE  
Fax No. : 495 0622

No. 610/Ban 28

To, Chandrakant m joshi,

Date: 3/4/01

Patent & Trade mark Attorneys  
501, Vishwanathik Chakala Rd  
Andheri (E) Mumbai - 400 099

Sub : Preliminary Examination Report of Application No. 610/Ban 28

[Please note that this is NOT a First Examination Report u/s 12 of The Patents Act, 1970]

Sir/Madam,

The following requirements marked  $\checkmark$  are to be complied with within 15 days from receipt of this letter.

- 1) One/Two copies of Application/Provisional Specification/Complete Specification should be filed.
- 2) The drawings referred to in the specification should be prepared in accordance with the instructions contained in Rules 16 to 19 of the Patents Rules, 1972 (as amended in 1999) and filed in Triplicate.
- 3) The proof of title/right to make this application should be filed.
- 4) The proof of right to make the application has not been filed within the stipulated period of 3 months u/r 11 of the Patents Rules, 1972 therefore, a petition u/r 124 requesting the Controller for extending the said time limit should be filed.
- 5) Power of Attorney in your favour should be produced.
- 6) The complete specification filed by you does not contain any claim/meaning full claims. You may therefore request the Controller of Patents to treat your complete specification as provisional specification U/S 9(3) and file the complete specification within the stipulated time U/S 9(1) along with declaration of inventorship (Form -5).

RMID - 2

- 7) Declaration of Inventorship (Form-5/6) has not filed along with complete specification.
- 8) You have intimated about the change in Name/address/address for service/corrections in the specification which will be considered only after your filing a request in the prescribed manner on Form-13 with prescribed fee, U/S 57 of the Act.
- 9) For mentioning the name of inventor on the specification, you are required to file a request in the prescribed manner on Form-8 with prescribed fee, U/S 28 of the Act.
- 10) For the change of applicant, you are required to file a request in the prescribed manner on Form-6 with prescribed fee, U/S 20 of the Act.
- 11) Your request on Form-6/10 has been allowed and therefore, you should file an application and other documents in the name of claimant in triplicate.
- 12) The certified copy of the priority (convention) application should be filed.
- 13) A statement and undertaking regarding the application filed outside India on Form 3 as required under sub-section (8) (1) of the Act should be filed.
- 14) Petition u/r 123/124 should be filed for taking the particulars of corresponding foreign applications filed, on record.
- 15) Details regarding the search and/or examination report in respect of the applications filed outside India, as provided under Section 8 (2) of the Act, 1970 should be filed.
- 16) A copy of the Patent, as accepted in a country outside India should be submitted.
- 17) An abstract of the invention limited to 200 words should be filed.
- 18) *If you intend to file your above said application U/S 5(2) of the Act, please intimate immediately to this office accordingly.*

*If no response is received within 15 days from the date of the report, it will be presumed that the applicant are no longer interested to proceed further with the application and no further action on the said application will be taken by the Office.*

Yours faithfully,

EXAMINER OF PATENTS & DESIGNS

RMID - 2

3

GOVERNMENT OF INDIA  
PATENT OFFICE BRANCH  
TODI ESTATES, THIRD FLOOR  
SUN MILL COMPOUND, LOWER PAREL (WEST),  
MUMBAI-400 013.

Tel. No.4924058  
4925092  
4961370  
Fax No.4950622  
E-Mail:patnum@vsnl.net

No.610/BOM/1998

Date:

21 NOV 2001

To  
C.M.Joshi,  
501, Vishwa Nanak, Chakala Road,  
Andheri (East), Mumbai - 400 099

Sub : Patent Application No. 610/BOM/1998  
By BHARAT BHOGILAL PATEL

An examination of the above quoted application made under Section 12 of the Patents Act, 1970 (as amended in 1999) discloses the defects as mentioned on the reverse.

The documents noted in the margin are enclosed herewith for amendment in those respects and should be returned to this office at an early date, together with any observations that you would like to offer in connection therewith.

The application referred to will be deemed to have been abandoned unless all the requirements imposed by the said Act and the Patents Rules, 1972 (as amended in 1999) are complied with within fifteen months from the date of this statement. The said period of fifteen months can be extended up to eighteen months by making an application on Form 4 with the prescribed fee of Rs.250/- or Rs.1000/- per month (Rs.250/- for individual and Rs.1000/- for legal entities). Such extension of time for one, two or three months should be taken before the expiry of the said normal period of fifteen months. Further, it is pointed out that such extension of time can be granted only once.

*[Signature]*  
20/11/2001

(DR. B. K. SINGH)  
Examiner of Patents and Designs  
For Dy./Asstt. Controller of Patents and Designs

*o/c. Ro*

- Encl: 1. Application on Form- 1/1A/2/2A  
2. ~~Provisional and/or~~ Complete Specification  
3. ~~Provisional Drawings and/or~~ Complete Drawings.  
4. Form - 34.  
5. Form - 36.  
6. ~~Power of Attorney.~~

Note: All communications to be sent to the Controller of Patents at the above address

RMID - 2

1. Claims falls within the scope of sub clause of section 3 (d) of the Patents Act,1970.
2. Claims do not sufficiently define the invention.
3. Claims are not clearly worded as indicated therein.
4. Title in the application and specification to be made consistent with the opening paragraph of description and the statement of claims.
5. Distinguishing features as compared with prior art to be pinpointed clearly.
- ✓6. Application should be <sup>corrected as</sup> indicated therein.
- ✓7. Details regarding the search and/or examination report in respect of the same or substantially the same invention filed in any country outside India and any amendment effected in the specification including claims should be submitted immediately as provided under Section 8(2) of the Patents Act, 1970.
- ✓8. Patent Application number and its filing date should be given in Form-4 & 6.
- ✓9. Patent Application number ~~and~~ should be given on each drawing sheets.
10. If you desire to proceed with this application the requirements mentioned above should be complied with and the documents returned herewith should be resubmitted immediately so as to enable this office for taking necessary action.
11. If any corrections are made in any page of the specification that page should be freshly typed and filed in triplicate as otherwise the corrections, revisions and excisions made may appear in the photocopies of the specification supplied by the office. The original page should be returned to this office duly cancelled over your signature.

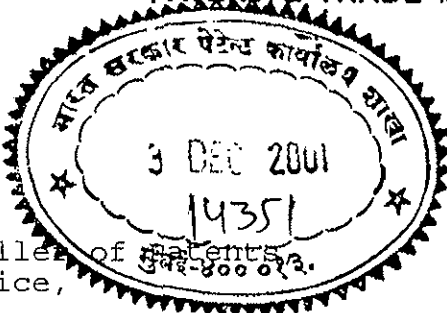
RMID - 2

# CHANDRAKANT M. JOSHI

PATENT & TRADE MARK ATTORNEYS

PT/8248  
26/11/2001

To,  
The Controller of Patents,  
Patent Office,  
Mumbai.



501, Vishwa Nanak, Chakala Road,  
Andheri (East), Mumbai - 400 099  
Tel.: 838-0848, 820-5425, 832-4920, 832-4969  
Fax: +91-22-838-0737, +91-22-838-9839  
Email : cmjoshi@bom3.vsnl.net.in

MEMBER

THE CHARTERED INSTITUTE OF PATENT AGENTS  
INTERNATIONAL TRADE MARK ASSOCIATION  
ASIAN PATENT ATTORNEYS ASSOCIATION

Dear Sirs;

Sub : Patent Application No. 610/BOM/1998  
By BHARAT BHOGILAL PATEL.

Please refer to your letter no. 610/BOM/1998/5772 dated 21/11/2001 wherein a sets of objection was communicated, we give below the observation as under :-

Referring to para (1), the invention is new and useful which is a single step process of marking, etching and engraving by using laser beam technology on metals and non-metals.

Referring to para (2), the claims has been reworded to make the invention clear.

Referring to para (3), the claims are now clearly worded.

Referring to para (4), title has been made consistent with application, complete specification and claims.

Referring to para (5), distinguishing feature has compared to prior art has been given in page (2) to (4).

Referring to para (6), application has been corrected as indicated.

Referring to para (7), the same application has not been filed in any Foreign Countries.

Referring to para (8), Patent application number and date of filing has been mentioned in Form (4) & Form (6).

Referring to para (9), Patent application number has been marked in each drawing sheets.

Freshly typed pages in co-druplicate alongwith the cancelled pages are submitted.

We now request you to accept the application at an early date.

Thanking you,

Yours truly,

HERAL CHANDRAKANT JOSHI  
PATENT & TRADE MARK ATTORNEYS

Encl. 1. Application  
2. Complete Specification  
3. Drawing  
4. Form 4 & Form 6  
5. Freshly types pages  
6. Cancelled pages

RMID - 2

GOVERNMENT OF INDIA  
THE PATENT OFFICE BRANCH  
TODI ESTATES, IIIRD FLOOR  
SUN MILL COMPOUND, LOWER PAREL(WEST)  
MUMBAI - 400 013.

3

Tel. No. 4924058  
4925092  
Fax No. 4950622

No. 610/BOM/ 1998 /6469  
To  
Chandrakant M. Joshi,  
501, Vishwa Nanak,  
Chakala Road,  
Andheri(East),  
Mumbai 400 099.

Date: 18/ 12 /2001

Sub: Patent Application No. 610/BOM/ 1998

Sir,

With reference to your letter No. PT/8248 dated 26.11.2001, I would invite your attention to the paragraphs noted below.

The marginally noted documents are returned herewith.

Yours faithfully,

Encl:

1. Application
2. Comp. specn.
3. Drawings.

*(Signature)*  
18/12/2001

(DR. B. K. SINGH)

Examiner of Patents & Designs

For Dy. ~~Asst.~~ Controller of Patents & Designs.

1. Requirement of paras 1 to 4 of this office letter dated 21.11.2001 has not been met.
2. Claims 3 & 5 are distinct from claim No.1
3. On further consideration it appears that process steps are operation of computer, it is not a manufacture within the meaning of Sec.2(1)(j).
4. Creation of aesthetic look/design is not a manner of manufacture within the meaning of section 2(1)(j)
5. If any amendment by way of correction, revision or excision is made in any page of the specification that page should be freshly typed and filed in quadruplicate.
6. If you desire to proceed with this application the requirements mentioned above should be complied with and the documents returned herewith should be resubmitted immediately so as to enable this office for taking necessary action.
7. The Normal period for putting this application in order for acceptance will expire on 21.02.2003.

tg

RMID - 2

**CHANDRAKANT M. JOSHI**  
**PATENT & TRADE MARK ATTORNEYS**

8

PT/8248  
08/01/2002

To,  
The Controller of Patents,  
Patent Office,  
Mumbai.

Dear Sirs,

501, Vishwa Nanak, Chakala Road,  
Andheri (East), Mumbai - 400 099  
Tel.: 838-0848, 820-5425, 832-4920, 832-4969  
Fax: +91-22-838-0737, +91-22-838-9839  
Email : cmjoshi@bom3.vsnl.net.in

**MEMBER**

**THE CHARTERED INSTITUTE OF PATENT AGENTS  
INTERNATIONAL TRADE MARK ASSOCIATION  
ASIAN PATENT ATTORNEYS ASSOCIATION**

**Sub : Patent Application No. 610/BOM/1998  
By BHARAT BHOGILAL PATEL.**

Please refer to your letter no. 610/BOM/1998/6469 dated 18/12/2001 wherein a sets of objection was communicated, we give below the observation as under :-

Referring to para (1), claims has been rewored to make the invention clear.

Referring to para (2), claims 3 & 5 has been deleted.

Referring to para (3), the invention is new & useful and patentable since it is not a software by itself.

Referring to para (4), the invention lies in engraving precious metals & non-metals of intricate design which are not possible in prior art system. Hence it is patentable. The objection may therefore be waived.

Referring to para (5), freshly typed pages alongwith cancelled pages are resubmitted.

We now request you to accept the application at an early date.

Thanking you,

Yours truly,

**HIRAL CHANDRAKANT JOSHI**  
**PATENT & TRADE MARK ATTORNEYS**

Encl. 1. Application  
2. Complete Specification  
3. Freshly types pages  
4. Cancelled pages



RMID-2



(P)

**GOVERNMENT OF INDIA  
PATENT OFFICE BRANCH  
TODI ESTATES, IIIRD FLOOR  
SUN MILL COMPOUND, LOWER PAREL (WEST),  
MUMBAI-400 013.**

Tel. No.4924058

4925092

4961370

Fax No.4950622

E-Mail:patmum@vsnl.net

Date: 4.3.2002

No. 610/BOM/1998

To

CHANDRAKANT M. JOSHI,  
Patent & Trade Mark Attorneys,  
501, "Vishwananak",  
Chakala Road,  
Andheri (East),  
MUMBAI : 400 099.

**Sub : Patent Application No. 610/BOM/1998  
By BHARAT BHOGILAL PATEL.**

Gentlemen,

With reference to your letter No. PT/8248 Dated. 08-01-2002, I would invite your attention to the paragraphs noted below.

The marginally noted documents are returned herewith.

Yours faithfully,

- Encl.: 1) Application  
2) Complete Specification  
3) Drawings.

(DR. B. K. SINGH)

Examiner of Patents & Designs

For Dy. Asstt. Controller of Patents & Designs

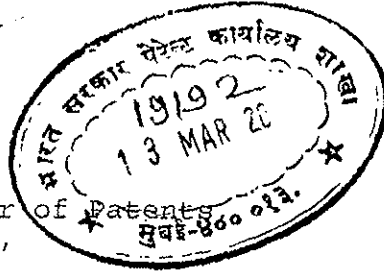
- 
1. Claims are not properly worded and also do not sufficiently define the invention as marked therein & Title in the application & specification to be made consistent with claims.
  2. Power of attorney in your favour should be produced immediately.
  3. The process claimed in claims (1), (4) and (7) are merely operational features of the machine and hence not an invention / manufacture within measuring of section 2(1) J Patents Act. 970
  4. Claim no. 3 conflicts with claim of Application No. 611/BOM/98.
  5. If any amendment by way of correction, revision, or excision is made in any page of the specification that page should be freshly typed and filed in triplicate.
  6. If you desire to proceed with this application the requirements mentioned above should be complied with and the documents returned herewith should be resubmitted immediately so as to enable this office for taking necessary action.
  7. The Normal Period for putting this application in order for acceptance will expire on 21-02-2003

RMID - 2

**CHANDRAKANT M. JOSHI**  
PATENT & TRADE MARK ATTORNEYS

(3)

PT/8248  
12/03/2002



To,  
The Controller of Patents,  
Patent Office,  
Mumbai.

501, Vishwa Nanak, Chakala Road,  
Andheri (East), Mumbai - 400 099  
Tel.: 838-0848, 820-5425, 832-4920, 832-4969  
Fax: +91-22-838-0737, +91-22-838-9839  
Email : cmjoshi@bom3.vsnl.net.in

MEMBER

THE CHARTERED INSTITUTE OF PATENT AGENTS  
INTERNATIONAL TRADE MARK ASSOCIATION  
ASIAN PATENT ATTORNEYS ASSOCIATION

Dear Sirs,

Sub : Patent Application No. 610/BOM/1998  
By BHARAT BHOGILAL PATEL.

Please refer to your letter no. 610/BOM/1998/8147 dated 04/03/2002 wherein a sets of objection was communicated, we give below the observation as under :-

Referring to para (1), The process claim for the manufacture of engrave design articles which was not conventionally possible is new & useful. Therefore it does not fall under 2(1) J of patents act. The objection may therefore be waived.

Referring to para (2), Power of Attorney enclosed in original. Title has been made precise.  
"A process of manufacturing engraved design articles on metal or non-metal."

Referring to para (3), the process claim is new & useful and hence the objection may be waived.

Referring to para (4), claim 3 has been deleted.

Referring to para (5), freshly typed pages alongwith cancelled pages are resubmitted.

We now request you to accept the application at an early date.

Thanking you,

Yours truly,

HIRAL CHANDRAKANT JOSHI  
PATENT & TRADE MARK ATTORNEYS

Encl. 1. Application  
2. Complete Specification  
3. Power of Attorney  
4. Freshly types pages  
5. Cancelled pages

RMD - 2

9

**GOVERNMENT OF INDIA  
PATENT OFFICE BRANCH  
TODI ESTATES, THIRD FLOOR  
SUN MILL COMPOUND, LOWER PAREL (WEST),  
MUMBAI-400 013.**

Tel. No.4924058

4925092

4961370

Fax No.4950622

E-Mail:patmum@vsnl.net

Date : 15-04-2002

No.610/BOM/1998/619  
To 15/4/02  
Chandrakant M. Joshi  
Patent & Trade Mark Attorneys,  
501, "Vishwananak", Chakala Road,  
Andheri (East),  
Mumbai - 400 099.

Sub: Patent Application No. 610/BOM/1998

Gentlemen,

With reference to your letter No. PT/8248 dated 12.03.2002; I would invite your attention to the paragraphs noted below.

The marginally noted documents are returned herewith.

Yours faithfully,

- Encl: 1) Application  
2) Complete Specification  
3) Drawings

*[Signature]*  
15/4/2002  
(DR.B.K.SINGH)

Examiner of Patents & Designs

For Asstt. Controller of Patents & Designs

*[Signature]*  
~~1. Requirement of para 3 of this office letter dated 4.03.2002 has not been met.~~

1. ~~2.~~ Claims 3 to 5 distinct as worded.
2. ~~3.~~ If any corrections are made in any page of the specification that page should be freshly typed and filed in triplicate as otherwise the corrections, revisions and excisions made may appear in the photocopies of the specification supplied by the office. The original page should be returned to this office duly cancelled over your signature.
3. ~~4.~~ If you desire to proceed with this application the requirements mentioned above should be complied with and the documents returned herewith should be resubmitted immediately so as to enable this office for taking necessary action.
4. ~~5.~~ The Normal Period for putting this application in order for acceptance will expire on 21.02.2003.

RMID - 2

**CHANDRAKANT M. JOSHI**  
**PATENT & TRADE MARK ATTORNEYS**

10

PT/8248  
20/04/2002

501, Vishwa Nanak, Chakala Road,  
Andheri (East), Mumbai - 400 099  
Tel.: 838-0848, 820-5425, 832-4920, 832-4969  
Fax: +91-22-838-0737, +91-22-838-9839  
Email : cmjoshi@bom3.vsnl.net.in

To,  
The Controller of Patents,  
Patent Office,  
Mumbai.

MEMBER

THE CHARTERED INSTITUTE OF PATENT AGENTS  
INTERNATIONAL TRADE MARK ASSOCIATION  
ASIAN PATENT ATTORNEYS ASSOCIATION

Dear Sirs,

Sub : Patent Application No. 610/BOM/1998  
By BHARAT BHOGILAL PATEL.

Please refer to your letter no. 610/BOM/1998/1619 dated  
15/04/2002 wherein a sets of objection was communicated, we give  
below the observation as under :-

Referring to para (1), claim 3 to 5 has been deleted.

Referring to para (2), freshly typed pages alongwith cancelled  
pages.

We now request you to accept the application at an early date.

Thanking you,

Yours truly,

HIRAL CHANDRAKANT JOSHI  
PATENT & TRADE MARK ATTORNEYS

Encl. 1. Application 2. Complete Specification  
3. Freshly types pages 4. Cancelled pages



RMID - 2

GOVERNMENT OF INDIA  
PATENT OFFICE BRANCH  
TODI ESTATES, 3RD FLOOR,  
SUN MILL COMPOUND,  
LOWER PAREL (WEST)  
MUMBAI- 400 013.

No. 610/BOM/98 <sup>3346</sup>/<sub>30/7/02</sub>

Dated: 20.6.02

To

C.M. Joshi  
501 Vishwananath  
Chalala Road  
- Andheri (E)  
Mumbai 400 99

Sub: Patent Application No. 610/130m/98  
Acceptance Intimation thereof.

Sir/Madam,

The above mentioned application for patent has been accepted and such acceptance will be advertised in the official Gazette of India under the provisions of Section 23 of Patents Act, 1970 by the Head Office at Calcutta and consequently the notice of the same would be duly communicated to you by the said office.

Yours faithfully,

Gain  
16/7/02

(Pinkesh K. Jain)

Dr. B.K. Singh

Examiner of Patents and Designs  
For Dy/Asst. Controller of Patents and Designs.

9/c

9/7/02  
20.6.02

RMID-2

GOVERNMENT OF INDIA  
PATENT OFFICE BRANCH  
TODI ESTATES, 3RD FLOOR,  
SUN MILL COMPOUND,  
LOWER PAREL(WEST),  
MUMBAI-400 013

22  
12

No.: 610/BOM/1998 / 4600

Date: 27 AUG 2002

To,  
The Joint Controller of Patents & Designs  
The Patent Office  
2nd M.S. Office Building,  
Nizam Palace, 234/4, A.J. Bose Road,  
CALCUTTA-700 020.

Sub : Acceptance of Patent Application No. : 610/BOM/1998

Sir,

I am to state that the complete specification in respect of application for Patent No. 610/BOM/1998 has been accepted in this office. A serial number may kindly be allotted to the said accepted Complete Specification and the notice of acceptance issued to the applicant(s) directly from your office and copy therefore endorsed to this office for record. The notification regarding acceptance of this application for publication in the Gazette of India, the original ~~Provisional Specification including drawings~~, complete specification including drawings as accepted, the Abridgement, Opening page, Coding Sheet and Abstract are enclosed herewith for further action in regard to publication and printing. There is/are no corresponding application(s) filed abroad on this invention.

This application relates to Food/Drug, under Section 5(a) of the Patents Act, 1970.

The reference of Indian copending application given on page of the provisional / complete specification may be replaced by corresponding Patent specification No.

Triplicate copies of the application, ~~Provisional Specification including drawings~~ and complete specification including drawings are enclosed herewith for your office use.

Yours faithfully,

P Jain  
23/7/02

( PINKESH K. JAIN )

EXAMINER OF PATENTS & DESIGNS

For ASSTT. CONTROLLER OF PATENTS & DESIGNS

Enclosures :

1. Application
2. ~~Prov. Specn including drawings (original & triplicate)~~
3. Complete Specification including drawings (original & triplicate) page No. 1, 2 & 10.
4. Notification (Eight copies)
5. Abridgement
6. Coding Sheet (in Duplicate)
7. Abstract
8. Statement of the application filed
9. Alteration of date (duplicate)
10. A copy of Form-10/Form-6
11. A copy of Form-29/Form-13
12. Notification for claimant under Section 20(1)(Duplicate)

9/11  
22

RMD - 2

24/11/05

Manoj G. Menda  
6/7 Srab Bhamcha Rd,  
Colaba,  
Mumbai 400 005

13

To,  
The Controller of Patents.  
The Patents Office,  
Lower Panel,  
Mumbai.

Ref:- Status of Patent Application Nos.

1) 610/BOM/1998

2) 611/BOM/1998 under S. 153 of the Patents Act

Respected Sir,

I, hereby, request you to kindly furnish me with details regarding the status of the aforesaid two applications, as to whether these applications have been opposed or have been granted patent and have been sealed along with the date of sealing.

Thanking you in anticipation.

Yours faithfully,

650/...  
24/11/05

श्री. नाथिका

श्री. नाथिका

For, Manoj G. Menda

RMID-2



INTELLECTUAL  
PROPERTY INDIA

बौद्धिक सम्पदा भारत  
एकस्य अभिकल्प / व्यापार चिन्ह /  
भौगोलिक संकेत  
PATENTS / DESIGNS /  
TRADEMARKS /  
GEOGRAPHICAL INDICATIONS

No. 610/BOM/1998

To.  
Manoj G. Menda,  
6/7 So:rab Bharucha Rd.,  
Colaba,  
Mumbai 400 005.



सत्यमेव जयते

भारत सरकार / GOVERNMENT OF INDIA

पेटेंट कार्यालय / THE PATENT OFFICE  
तोडी इस्टेट, ३ री मंजिल, सन मिल कंपाउंड, लोअर पारेल  
(प.), मुंबई - १३  
Todi Estate, 3<sup>rd</sup> Floor, Sun Mill Compound  
Lower Parel (West), Mumbai - 400 013

691  
8/12/05

दूरभाष Tel ☎ 022-2492 4058  
022-2492 5092  
022-2496 1370  
022-24949845  
022-24922710

फॅक्स Fax ☎ 022-2495 0622  
022-24903852  
Email patmum@vsnl.net  
Website www.ipindia.nic.in

Date:

8/12/05

**Sub:Request u/s 153 in respect of Patent Application**  
**No. 610/BOM/1998**

Sir.

With reference to your letter dated 24/11/2005 requesting information u/s 153 in respect of automatic patent application No. 610/BOM/1998, I would like to inform you that patent has been granted (sealed) on 24.10.2003 to said application.

Yours faithfully,

*P Jain*  
7/12/05

(Pinkesh Jain)  
Examiner of Patents & Designs.  
For Asstt. Controller of Patents & Designs.

214  
14

RMID - 2



FORM 1

THE PATENTS ACT, 1970

APPLICATION FOR PATENT WHEN THE TRUE AND FIRST INVENTOR  
IS THE SOLE OR JOINT APPLICANT

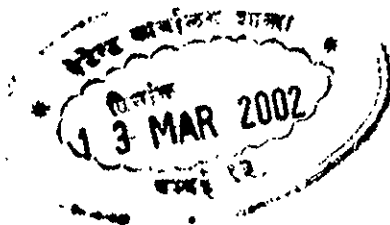
(See Section 7)

I BHARAT BHOGILAL PATEL of 1/41 JUHU GOLD MIST, JUHU  
GULMOHAR ROAD, J.V.P.D. SCHEME, VILE PARLE(W), MUMBAI - 400  
049, MAHARASHTRA, India , INDIAN national hereby declare : -

- i) that I am in possession of an invention for  
A PROCESS OF MANUFACTURING ENGRAVED DESIGN ARTICLES ON  
METALS OR NON-METALS ;
- ii) that I the said BHARAT BHOGILAL PATEL claim to be the  
true and first inventor thereof;
- iii) that the complete specification filed with this  
application is and any amended specification which may  
hereafter be filed in this behalf will be true of the  
invention to which this application relates;
- iv) that I believe that I am entitled to a patent for the  
said invention having regard to the provisions of the  
Patents Act, 1970;
- v) that to the best of my knowledge, information and  
belief the facts and matters stated herein are correct  
and that there is no lawful ground of objection to the  
grant of patent to me on this application.

I request that a patent may be granted to me for the said  
invention.

JKAN  
6/10/2001/98  
21/09/98



RMID - 2

FORM - 4

THE PATENTS ACT, 1970.  
STATEMENT AND UNDERTAKING UNDER  
SECTION 8

(see Rule 13)



ORIGINAL

I BHARAT BHOGILAL PATEL of 1/41 JUHU GOLD MIST, JUHU GULMOHAR ROAD, J.V.P.D. SCHEME, VILE PARLE (W) MUMBAI - 400 049, India, INDIAN national who have made an application for patent Numbered 610/BOM/1998 dated 21/09/1998 for our invention relating to A PROCESS OF MARKING, ETCHING & ENGRAVING THROUGH LASER TECHNOLOGY hereby declare :-

- (i) We claim the title to make the said application/deriving the title in the said invention from me/us, have made application for patent for the same/invention in the following countries namely :
- (a) NONE
- (ii) that the said application has/have been accepted, refused, abandoned or withdrawn; NONE
- (iii) that the following patent has/have been granted on such application :- NONE
- \*\* (iv) that the rights in the application have been assigned to NONE
- \*\* (v) that I undertake that upto the date of acceptance of the complete specification filed in connection with our above mentioned application, we would keep the controller informed in writing from time to time of the details regarding application for patents filed outside India from time to time for the same or substantially same invention within three months from date of filing of such application;
- \*\* (vi) that the facts and matters stated herein are true to our knowledge, information and belief.

Dated this 2nd day of September, 1998.

x *Bharat Patel*  
BHARAT BHOGILAL PATEL

To  
The Controller Of Patents,  
The Patent Office,  
Mumbai

610 | मुंबई | 1998  
BOM

21 SEP 1998

RMID-2

FORM 6

THE PATENTS ACT, 1970



DECLARATION AS TO INVENTORSHIP

[(See Rule 14(5)]

ORIGINAL

I BHARAT BHOGILAL PATEL of 1/41 JUHU GOLD MIST, JUHU GULMOHAR ROAD, J.V.P.D. SCHEME, VILE PARLE(W) MUMBAI - 400 049 India, INDIAN national do hereby declare that the true and first inventor of the invention disclosed in the complete specification filed in pursuance of my application Numbered 610/BOM/1998 Dated 21 /09 /1998 is BHARAT BHOGILAL PATEL of 1/41 JUHU GOLD MIST, JUHU GULMOHAR ROAD, J.V.P.D. SCHEME, VILE PARLE (W), MUMBAI - 400 049 MAHARASHTRA India, INDIAN national and that our right to apply for a patent for the invention is as follows : -

I am the true and first Inventor.

Dated this 2nd day of September 1998.

*Bharat Patel*  
BHARAT BHOGILAL PATEL

To  
The Controller Of Patents,  
The Patent Office,  
Mumbai

610 | मुंबई | 1998  
| BOM |  
21 SEP 1998

RMID - 2

FORM - 3A  
THE PATENTS ACT, 1970  
COMPLETE  
SPECIFICATION

SECTION 10

**TITLE** : A PROCESS OF MANUFACTURING ENGRAVED  
DESIGN ARTICLES ON METALS OR NON-METALS

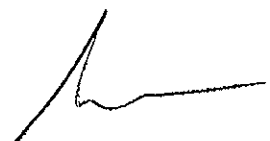
**APPLICANT:-** BHARAT BHOGILAL PATEL, OF 1/43 JUHU GOLD MIST,  
JUHU GULMOHAR ROAD, J.V.P.D. SCHEME, VILE PARLE (W),  
MUMBAI 400 049, MAHARASHTRA, INDIA. AN INDIAN  
NATIONAL.

The following Specification particularly describes and ascertains the nature of this  
invention and the manner in which it is to be performed :-

RMID - 2

6. A process of marking, etching & engraving by using a laser beam technology on metals and non-metals as claimed in claim 1 wherein the machine can be provided with different power supply as per the need of different industries which may be range from 10 watts to 200 watts (out put power )
  
7. A process of marking, etching & engraving as claimed in claim 1 and substantially herein described.

Dated this 14th day of September, 1998.



HIRAL CHANDRAKANT JOSHI  
AGENT FOR  
BHARAT BHOGILAL PATEL

I CLAIM :

1. A process of manufacturing engraved design articles on metals or non-metals consisting of
  - a. marking the required design on metal or non-metal;
  - b. etching the outer and inner area of the design;
  - c. engraving the etched area and finally drilling the engraved area by means of laser beam through sequential command from a computer to obtain ornamented design on precious metals and non-metals.
  
2. A process as claimed in claim 1 wherein the metal and non-metals are Gold, Silver, Stainless Steel, Cutleries, Gold & Silver Ornaments & Jewellaries like Chains, bracelets, necklace, bangles, jewellery boxes, rings, ear rings, cuff links, spectacle frames, designer pens, buttons, precision & semi-precision stones like hametite, melakite, pearl, diamond, ruby, saphirre and etc orthopedic implants, precision tools, measuring tools, tool holder, heart walves, cutting blades, knives, pens all typed of plastic keyboard for computer & machineries & contact lenses, Holographic sheet, labels and transfers.
  
3. A laser marking & an engraving machine for carrying out the process as claimed in claim 1 as comprising of the laser head comprising of head, mirror mount to mount to regulate the apparatus so as to vary the intensity of the Laser Beam, which is further provided with a beam bender for positioning the beam in a required direction which is supported in a

rail & connected to a control panel provided with power supply, RF Driver, Heat Exchanger, Chiller to generate a laser beam of required intensity for marking/etching, engraving, scrubbing, cutting as per the required design programmable through a computer on metals & non-metals through beam steered galvo's & flat field galvo's/scanning heads.

4. A process of marking, etching & engraving by using a laser beam technology on metals and non-metals as claimed in claim 1 wherein the machine is connected through electronic circuit consisting of main (1) which is connected through the programmable computer (3) through stabilizer (2) in series. Another phase from the main is supplied to the laser head, through a chiller, the input of a computer (3) is provided to scanning head (5) through a RF Driver (6) for directing the laser beam on required area on the object place on the table (8).
  
5. A process for marking, etching & engraving by using a laser beam technology on metals and non-metals wherein the laser head is provided with adjustable rods & lamps of various sizes can be provided on the laser heads for handling different types of materials where the hardness of the material is vastly differs.

TRPL

I CLAIM :

1. A process of manufacturing engraved design articles on metals or non-metals consisting of
  - a. marking the required design on metal or non-metal;
  - b. etching the outer and inner area of the design;
  - c. engraving the etched area and finally drilling the engraved area by means of laser beam through sequential command from a computer to obtain ornamented design on precious metals and non-metals.
  
2. A process as claimed in claim 1 wherein the metal and non-metals are Gold, Silver, Stainless Steel, Cutleries, Gold & Silver Ornaments & Jewellaries like Chains, bracelets, necklace, bangles, jewellery boxes, rings, ear rings, cuff links, spectacle frames, designer pens, buttons, precision & semi-precision stones like hametite, melakite, pearl, diamond, ruby, saphirre and etc orthopedic implants, precision tools, measuring tools, tool holder, heart walves, cutting blades, knives, pens all typed of plastic keyboard for computer & machineries & contact lenses, Holographic sheet, labels and transfers.
  
3. A laser marking & an engraving machine for carrying out the process as claimed in claim 1 as comprising of the laser head comprising of head, mirror mount to mount to regulate the apparatus so as to vary the intensity of the Laser Beam, which is further provided with a beam bender for positioning the beam in a required direction which is supported in a

RMID - 2




rail & connected to a control panel provided with power supply, RF Driver, Heat Exchanger, Chiller to generate a laser beam of required intensity for marking/etching, engraving, scrubbing, cutting as per the required design programmable through a compute on metals & non-metals through beam steared galvo's & flat field galvo's/scanning heads.

4. A process of marking, etching & engraving by using a laser beam technology on metals and non-metals as claimed in claim 1 wherein the machine is connected through electronic circuit consisting of main (1) which is connected through the programmable computer (3) through stabilizer (2) in series. Another phase from the main is supplied to the laser head, through a chiller, the input of a computer (3) is provided to scanning head (5) through a RF Driver (6) for directing the laser beam on required area on the object place on the table (8).
  
5. A process for marking, etching & engraving by using a laser beam technology on metals and non-metals wherein the laser head is provided with adjustable rods & lamps of various sizes can be provided on the laser heads for handling different types of materials where the hardness of the material is vastly differs.

6. A process of marking, etching & engraving by using a laser beam technology on metals and non-metals as claimed in claim 1 wherein the machine can be provided with different power supply as per the need of different industries which may be range from 10 watts to 200 watts (out put power )
7. A process of marking, etching & engraving as claimed in claim 1 and substantially herein described.

Dated this 14th day of September, 1998.



HIRAL CHANDRAKANT JOSHI  
AGENT FOR  
BHARAT BHOGILAL PATEL

P-11  
C-3  
-D-1

FORM 3 A

THE PATENTS ACT, 1970  
COMPLETE SPECIFICATION

(See Section 10)

A PROCESS OF MANUFACTURING ENGRAVED DESIGN ARTICLES ON  
METALS OR NON-METALS

BHARAT BHOGILAL PATEL of 1/43 JUHU GOLD MIST, JUHU GULMOHAR  
ROAD, J.V.P.D. SCHEME, VILE PARLE(W), MUMBAI - 400 049,  
MAHARASHTRA, India, INDIAN national

The following specification particularly describes and  
ascertains the nature of this invention and the manner  
inwhich it is to be performed : -

gdpl  
610/Dom/98  
21/09/98

13 MAR 2002

RMID-2

GRANTED

**A PROCESS OF MANUFACTURING ENGRAVED DESIGN ARTICLES  
ON METALS AND NON METALS**

The invention relates to a process of manufacturing engraved design articles on metals and non metals.

More particularly the invention relates to marking & engraving on metals and non-metals by use of Laser Beam Technology.

Conventionally these work was carried out by printing & then etching by means of mechanical as well as chemical means. The prior process of printing of required design on the object itself is a lengthy process such as making of a artwork, making of pattern, drawings, logos, symbols which is then photographed and developed to get a positive and negatives then the master copy is prepared and alternatively printing with a acid resistive ink and subsequently the etching process. The prior process has got its limitations for the Finner works & on the shape of the object and all types of metals can not be etched with this process. Apart from the difficulty in printing on the substance the process of etching is also a tedious. Conventionally as all metals are not easily dissolve by the acid treatment. The process itself is a tedious, lengthy and hence costly. To develop a intricate design on some metals or non-metals where the precision is of the prime need or the substance itself is very costly or the shape of the object is such (round or cylindrical) it is difficult to have a proper marking/etching effect in the prior process.

Due to high manufacturing and disposal cost of the inkjet markers &

& environmental concerns make acid etching chemistry too costly. Due to the cost in creating, storing, & replacing stencils or to avoid multi-step process the inventor has done a lot of research on a laser marking & engraving machine & came up with a unique laser marking system which can provide with a unique combination of speed, performance, especially imaging properties & a benefit of computer control which can lead to a clean, simple to use, one step process for making virtually any text or graphic image on almost any metals or non-metallic materials.

**OBJECT OF THE INVENTION:**

1. The primary object of the invention is to provide a process of marking, etching & engraving by using laser beam technology on metals & non-metals which gives improved marking quality.
2. The another object of the invention is to provide a process of marking, etching & engraving by using laser beam technology on metals & non-metals to reduce the maintenance cost.
3. The further object of the invention is to provide a process of marking, etching & engraving by using laser beam technology on metals & non-metals which eliminates secondary processes.

4. A still further object of the invention is to provide a process of marking, etching & engraving by using laser beam technology on metals & non-metals which is safe, easy to handle, economic.
5. Still further object of the invention is to provide a process of marking, etching & engraving by using laser beam technology on metals & non-metals which has traceability to identify through monograms, logos Batchnumber, Barcode, Codenumber & pilferproof marking on the substance through this technology.
6. Still further object of the invention is to provide such an improved machine where the marking is pilferproof which is universally acclaimed for laser marking on the substance itself for export purposes.

Accordingly there is provided a process of marking, etching & engraving by using laser beam technology on metals & non-metals consisting of a laser head comprising a head, mirror mount, apparatus mount, beam bender, rail, through power supply, RF Driver, heat exchanger & chiller to generate a laser beam connected with a programmable computer system to generate the laser beam for marking & engraving the required design on the substance placed on the table through the Galvos.

The instrument is further provided with mirror mount for the mounting of plurality of mirrors. Q-switch mount for Q-switch. Aperture mount for aperture. Head which is got gold cavities, lamps source (co and Nd: VAG) & etc.

2

The system is connected by the electronic circuit through a power supply. The description will now be claimed from the following figure 1,2,3 in the accompanying specification.

Fig. 1 is a schematic diagram of a laser marking machine.

Fig. 2 is a sectional elevation of laser head.

Fig. 3 is a sectional elevation of Galvo's.

Referring to Fig. 1 to 3 the power supply (1) main is connected to stabilizer (2) in series which is connected to the computer (3) through a control panel in series which gives input to the Galvo steared beams (5) through a RF driver; input from control panel (4) generate laser beam on the laser head (7) which is used through a galvo's consisting of beam steared galvo & flat field galvo which rotates the beam as per the required design/markings. The substance is kept below the galvo. On some table (8) which is adjustable for focusing the length of the beam. The apparatus is further provided with a chiller for chilling primary circuits in the laser head as well as deionised water cooling for the laser head internally as well as externally. The object is placed on

the table then focal point is adjusted to get the right beam spot size on the object. Then a program is being load on the computer and frequency are being set on the computer for desired result. Once the setup is ready we only adjust power according to the dept required. Then the command is given on the computer for marking on the object through the galvo's by laser beam.

Galvo's provided with frequency generator laser scanning lenses the frequency lenses can be design as per laser marking required by the customer.

F-Theta lenses have been designed for Laser Marking, Engraving, Printing, Graphic Art, Mirco-machining, Trimming, Guaging, and Surface Cleaning. These High Quality Air-Spaced F-Theta Lenses are designed to provide diffraction limited performance and low F-Theta distortion.

A table showing the spot size according to area is given as under.

| Wavelength (nm) | Focal Length (mm) | Scan Area (mm) | Spot Size (um) |
|-----------------|-------------------|----------------|----------------|
| 1064            | 56                | 20 x 20        | 5              |
| 1064            | 80                | 56 x 56        | 15             |
| 1064            | 100               | 60 x 60        | 14             |
| 1064            | 100               | 60 x 60        | 14             |
| 1064            | 100               | 60 x 60        | 12             |
| 1064            | 125               | 64 x 64        | 12             |
| 1064            | 125               | 64 x 64        | 12             |
| 1064            | 160               | 98 x 98        | 25             |
| 1064            | 160               | 98 x 98        | 25             |
| 1064            | 160               | 100 x 100      | 23             |
| 1064            | 160               | 110 x 110      | 23             |
| 1064            | 163               | 110 x 110      | 31             |



|         |     |           |    |
|---------|-----|-----------|----|
| 1064    | 163 | 100 x 100 | 31 |
| 1064    | 163 | 100 x 100 | 18 |
| 1064    | 164 | 100 x 100 | 29 |
| 1064    | 164 | 100 x 100 | 29 |
| 1064    | 181 | 72 x 72   | 24 |
| 1064    | 181 | 72 x 72   | 24 |
| 1064    | 235 | 106 x 106 | 31 |
| 1064    | 235 | 106 x 106 | 31 |
| 1064    | 240 | 168 x 168 | 30 |
| 1064    | 240 | 168 x 168 | 30 |
| 1064    | 254 | 160 x 160 | 22 |
| 1064    | 254 | 160 x 160 | 22 |
| 1064    | 295 | 254 x 254 | 30 |
| 1064    | 300 | 212 x 212 | 30 |
| 1064    | 300 | 212 x 212 | 30 |
| 1064    | 300 | 212 x 212 | 20 |
| 1064    | 330 | 225 x 225 | 40 |
| 1064    | 330 | 225 x 225 | 40 |
| 1064    | 350 | 220 x 220 | 33 |
| 1064    | 410 | 250 x 250 | 34 |
| 1064    | 420 | 285 x 285 | 50 |
| 1064    | 420 | 285 x 285 | 50 |
| 1064    | 810 | 500 x 500 | 55 |
| 820     | 401 | 220 x 220 | 25 |
| 780     | 88  | 40 x 40   | 8  |
| 780     | 296 | 180 x 180 | 30 |
| 780     | 508 | 330 x 330 | 22 |
| 633/670 | 88  | 40 x 40   | 8  |
| 633/670 | 156 | 70 x 70   | 32 |
| 633/670 | 156 | 70 x 70   | 12 |
| 633     | 105 | 30 x 30   | 9  |
| 633     | 155 | 70 x 70   | 13 |
| 532     | 56  | 18 x 18   | 6  |
| 532     | 100 | 50 x 50   | 10 |
| 532     | 94  | 55 x 55   | 10 |
| 532     | 94  | 55 x 55   | 10 |
| 532     | 102 | 53 x 53   | 7  |
| 532     | 102 | 53 x 53   | 7  |
| 532     | 159 | 100 x 100 | 14 |
| 532     | 159 | 100 x 100 | 14 |
| 532     | 163 | 80 x 80   | 20 |
| 532     | 254 | 150 x 150 | 18 |
| 532     | 250 | 150 x 150 | 11 |
| 532     | 300 | 175 x 175 | 18 |
| 532     | 410 | 225 x 225 | 30 |
| 532     | 508 | 350 x 350 | 15 |
| 532     | 810 | 500 x 500 | 30 |

|       |     |           |     |
|-------|-----|-----------|-----|
| 488   | 508 | 330 x 330 | 22  |
| 355   | 254 | 100 x 100 | 21  |
| 355   | 810 | 400 x 400 | 30  |
| 308   | 254 | 100 x 100 | 21  |
| 10600 | 120 | 76 x 76   | 250 |
| 10600 | 157 | 100 x 100 | 325 |

The power ranging to 10 watts to 200 watts for different types of heads are available for different types of markings to get generated at different speeds. Laser lamps and rods & source of generating LASER are provided as per the design of the head use for manufacturing of the lasers.

In many cases there are several laser lamps available for any given laser type. Laser lamps will provide, were possible, the lamps from the manufacturer of your choice. Laser lamps are continuously being improved so that all times provide the laser lamps best suited for a given laser system and application. There are thousands of laser lamps that can readily provided. Our extensive cross-reference list should identify the compatible laser lamp model number.

Thus the apparatus has got a varsalite application in the field of metal, ceramic, plastic, jewellery, orthopedic, medical, pilferproof, optical industries, & high precision tools & equipment manufacturing.

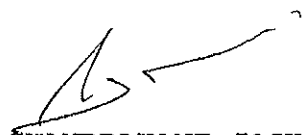
The unique marking device by the laser technology which has a very wide range of application is generating very good demand in local as well as the market abroad. The inventor has done lot of research to improve upon the machine as well as the marking technology. Several modifications by changing the galvo's, scanning head, Q-switch, mirror, beam benders are possible on different types of materials for marking/engraving as well as designing. By deep engraving, cutting of material is also possible by a multi pass means of working.

The machine is user's friendly does not require any great skill for handling the job. This is an embodiment several modifications are possible which may be considered with the spirit & ambit of this invention.

I CLAIM :

1. A process of manufacturing engraved design articles on metals or non-metals using laser beam technology consisting of
  - a. marking the required design on metal or non-metal;
  - b. etching the outer and inner area of the design;
  - c. engraving the etched area and finally drilling the engraved area by means of laser beam through sequential command from a computer to obtain ornamented design on precious metals and non-metals.
  
2. A process as claimed in claim 1 wherein the metal and non-metals are Gold, Silver, Stainless Steel, Cutleries, Gold & Silver Ornaments & Jewellaries like Chains, bracelets, necklace, bangles, jewellery boxes, rings, ear rings, cuff links, spectacle frames, designer pens, buttons, precision & semi-precision stones like hametite, melakite, pearl, diamond, ruby, saphirre and etc orthopedic implants, precision tools, measuring tools, tool holder, heart walves, cutting blades, knives, pens all typed of plastic keyboard for computer & machineries & contact lenses, Holographic sheet, labels and transfers.
  
3. A process of maanufacturing engraved designed article as claimed in claim 1 and substantially herein described.

Dated this 14th day of September, 1998.

  
HIRAL CHANDRAKANT JOSHI  
AGENT FOR  
BHARAT BHOGILAL PATEL

NAME OF APPLICANT : BHARAT BHOGLIAL PATEL  
APPLICATION NO. : 610 /BOM/98

NO OF SHEETS : 2  
SHEET NO. : 1

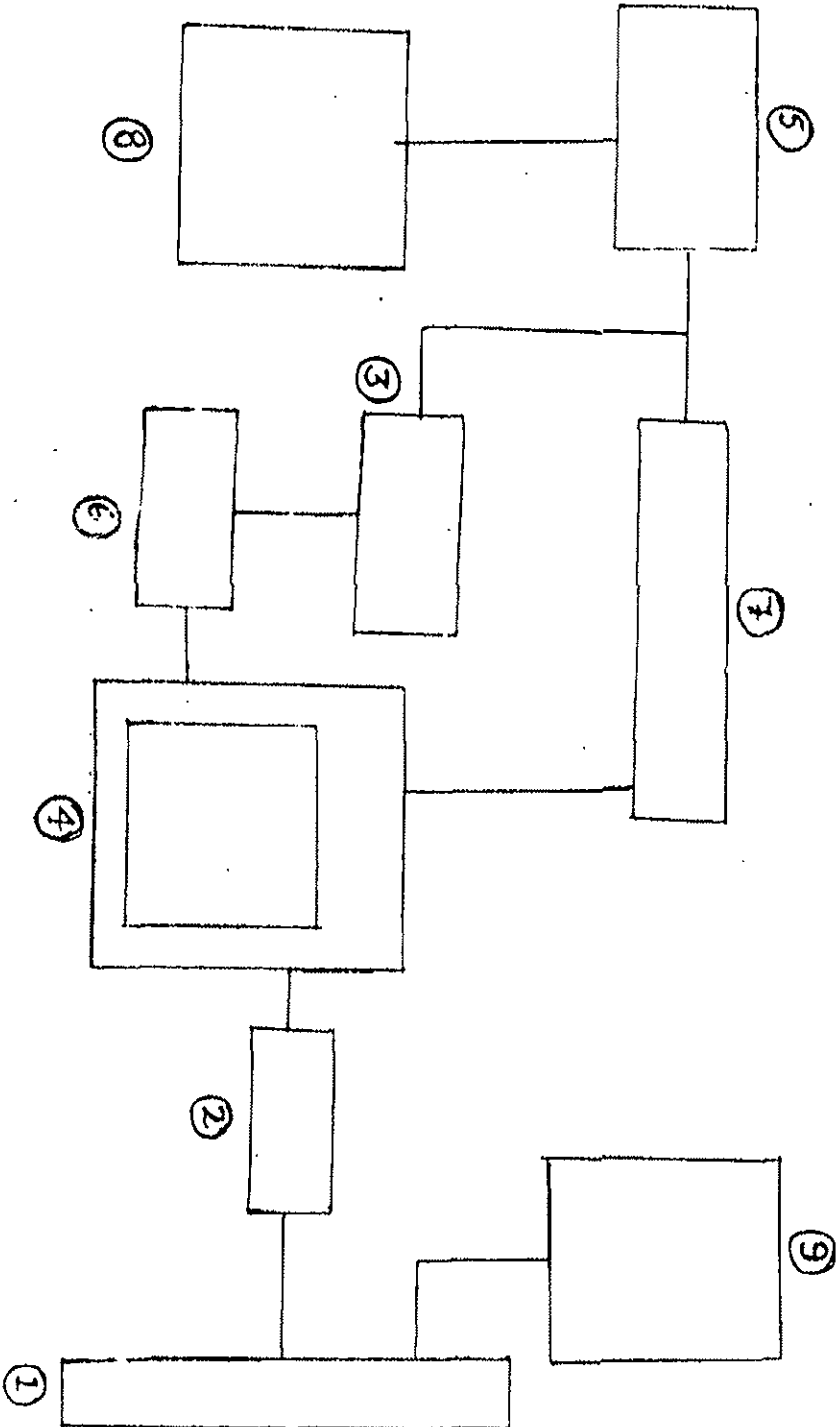


FIG. 1

21 SEP 1998

RMID - 2

CHANDRAKANT M. JOSHI  
AGENT FOR  
BHARAT BHOGLIAL PATEL

P-15  
C-7  
D-2

FORM 3 A

THE PATENTS ACT, 1970  
COMPLETE SPECIFICATION

(See Section 10)

*Marking, Etching & Engraving*

A PROCESS OF ~~MANUFACTURING CUTLERY AND GOLD ORNAMENTS~~  
THROUGH LASER TECHNOLOGY

BHARAT BHOSILAL PATEL of 1/41 JUHU GOLD MIST, JUHU GULMOHAR  
ROAD, J.V.P.D. SCHEME, VILE PARLE (W), MUMBAI - 400 049  
India, INDIAN national

The following specification particularly describes and  
ascertains the nature of this invention and the manner in  
which it is to be performed : -

610 | मुंबई | 1998  
BOM

23 SEP 1998

RMID-2

PROCESS OF MARKING, ETCHING & ENGRAVING BY USING  
LASER BEAM TECHNOLOGY ON METALS & NON-METALS

The invention relates to a process of marking, etching & engraving by using laser beam technology on metals & non-metals. More particularly the invention relates to marking & engraving on metals and non-metals by use of Laser Beam Technology.

Conventionally these work was carried out by printing & then etching by means of mechanical as well as chemical means. The prior process of printing of required design on the object itself is a lengthy process such as making of a artwork, making of pattern, drawings, logos, symbols which is then photographed and developed to get a positive and negatives then the master copy is prepared and alternatively printing with a acid resistive ink and subsequently the etching process. The prior process has got its limitations for the Finner works & on the shape of the object and all types of metals can not be etched with this process. Apart from the difficulty in printing on the substance the process of etching is also a tedious process. Conventionally as all metals are not easily dissolve by the acid treatment. The process itself is a tedious, lengthy and hence costly. To develop a intricate design on some metals or non-metals where the precision is of the prime need or the substance itself is very costly or the shape of the object is such (round or cylindrical) it is difficult to have a proper marking/etching effect in the prior process.

Due to high manufacturing and disposal cost of the inkjet markers

& environmental concerns make acid etching chemistry too costly. Due to the cost in creating, storing, & replacing stencils or to avoid multi-step process the inventor has done a lot of research on a laser marking & engraving machine & came up with a unique laser marking system which can provide with a unique combination of speed, performance, especially imaging properties & a benefit of computer control which can lead to a clean, simple to use, one step process for making virtually any text or graphic image on almost any metals or non-metallic materials.

**OBJECT OF THE INVENTION:**

1. The primary object of the invention is to provide a process of marking, etching & engraving by using laser beam technology on metals & non-metals which gives improved marking quality.
2. The another object of the invention is to provide a process of marking, etching & engraving by using laser beam technology on metals & non-metals to reduce the maintenance cost.
3. The further object of the invention is to provide a process of marking, etching & engraving by using laser beam technology on metals & non-metals which eliminates secondary processes.



4. A still further object of the invention is to provide a process of marking, etching & engraving by using laser beam technology on metals & non-metals which is safe, easy to handle, economic.
5. Still further object of the invention is to provide a process of marking, etching & engraving by using laser beam technology on metals & non-metals which has traceability to identify through monograms, logos Batchnumber, Barcode, Codenumber & pilferproof marking on the substance through this technology.
6. Still further object of the invention is to provide such an improved machine where the marking is pilferproof which is universally acclaimed for laser marking on the substance itself for export purposes.

Accordingly there is provided a process of marking, etching & engraving by using laser beam technology on metals & non-metals consisting of a laser head comprising a head, mirror mount, apparatus mount, beam bender, rail, through power supply, RF Driver, heat exchanger & chiller to generate a laser beam connected with a programmable computer system to generate the laser beam for marking & engraving the required design on the substance placed on the table through the Galvos.

The instrument is further provided with mirror mount for the mounting of plurality of mirrors. Q-switch mount for Q-switch. Aperture mount for aperture. Head which is got gold cavities, lamps source (co and Nd: VAG) & etc.

2

The system is connected by the electronic circuit through a power supply. The description will now be claimed from the following figure 1,2,3 in the accompanying specification.

Fig. 1 is a schematic diagram of a laser marking machine.

Fig. 2 is a sectional elevation of laser head.

Fig. 3 is a sectional elevation of Galvo's.

Referring to Fig. 1 to 3 the power supply (1) main is connected to stabilizer (2) in series which is connected to the computer (3) through a control panel in series which gives input to the Galvo steared beams (5) through a RF driver; input from control panel (4) generate laser beam on the laser head (7) which is used through a galvo's consisting of beam steared galvo & flat field galvo which rotates the beam as per the required design/markings. The substance is kept below the galvo. On some table (8) which is adjustable for focusing the length of the beam. The apparatus is further provided with a chiller for chilling primary circuits in the laser head as well as deionised water cooling for the laser head internally as well as externally. The object is placed on

RMID - 2