INTELLECTUAL PROPERTY INDIA
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सत्यमेव जयते

क्रम सं/SL No :022130162

पेटेंट कार्यालय,भारत सरकार | The Patent Office, Government Of India

पेटेंट प्रमाण पत्र | Patent Certificate

(पेटेंट नियमावली का नियम 74) | (Rule 74 of The Patents Rules)

पेटेंट सं. / Patent No.	:	465794
आवेदन सं. / Application No.	:	202021011320
फाइल करने की तारीख / Date of Filing	:	16/03/2020
पेटेंटी / Patentee	:	1.PASI, Bhaveshkumar N. 2.MAHAJAN, Subhash K. 3.RANE, Santosh B.

प्रमाणित किया जाता है कि पेटेंटी को, उपरोक्त आवेदन में यथाप्रकटित *A SYSTEM AND A METHOD FOR PERFORMING FORGING OPERATION* नामक आविष्कार के लिए, पेटेंट अधिनियम, 1970 के उपबंधों के अनुसार आज तारीख मार्च 2020 के सोलहवें दिन से बीस वर्ष की अवधि के लिए पेटेंट अनुदत्त किया गया है।

It is hereby certified that a patent has been granted to the patentee for an invention entitled *A SYSTEM AND A METHOD FOR PERFORMING FORGING OPERATION* as disclosed in the above mentioned application for the term of 20 years from the 16th day of March 2020 in accordance with the provisions of the Patents Act,1970.

अनुदान की तारीख : 03/11/2023
Date of Grant :

पेटेंट नियंत्रक
Controller of Patents

टिप्पणी - इस पेटेंट के नवीकरण के लिए फीस, यदि इसे बनाए रखा जाना है, मार्च 2022 के सोलहवें दिन को और उसके पश्चात प्रत्येक वर्ष मे उसी दिन देय होगी।

Note. - The fees for renewal of this patent, if it is to be maintained, will fall / has fallen due on 16th day of March 2022 and on the same day in every year thereafter.

Office of the Controller General of Patents, Designs & Trade Marks
Department of Industrial Policy & Promotion,
Ministry of Commerce & Industry,
Government of India

सत्यमेव जयते

INTELLECTUAL PROPERTY INDIA
PATENTS | DESIGNS | TRADE MARKS
GEOGRAPHICAL INDICATIONS

Application Details	
APPLICATION NUMBER	202021011320
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	16/03/2020
APPLICANT NAME	**1 . PASI, Bhaveshkumar N.** **2 . MAHAJAN, Subhash K.** **3 . RANE, Santosh B.**
TITLE OF INVENTION	A SYSTEM AND A METHOD FOR PERFORMING FORGING OPERATION
FIELD OF INVENTION	MECHANICAL ENGINEERING
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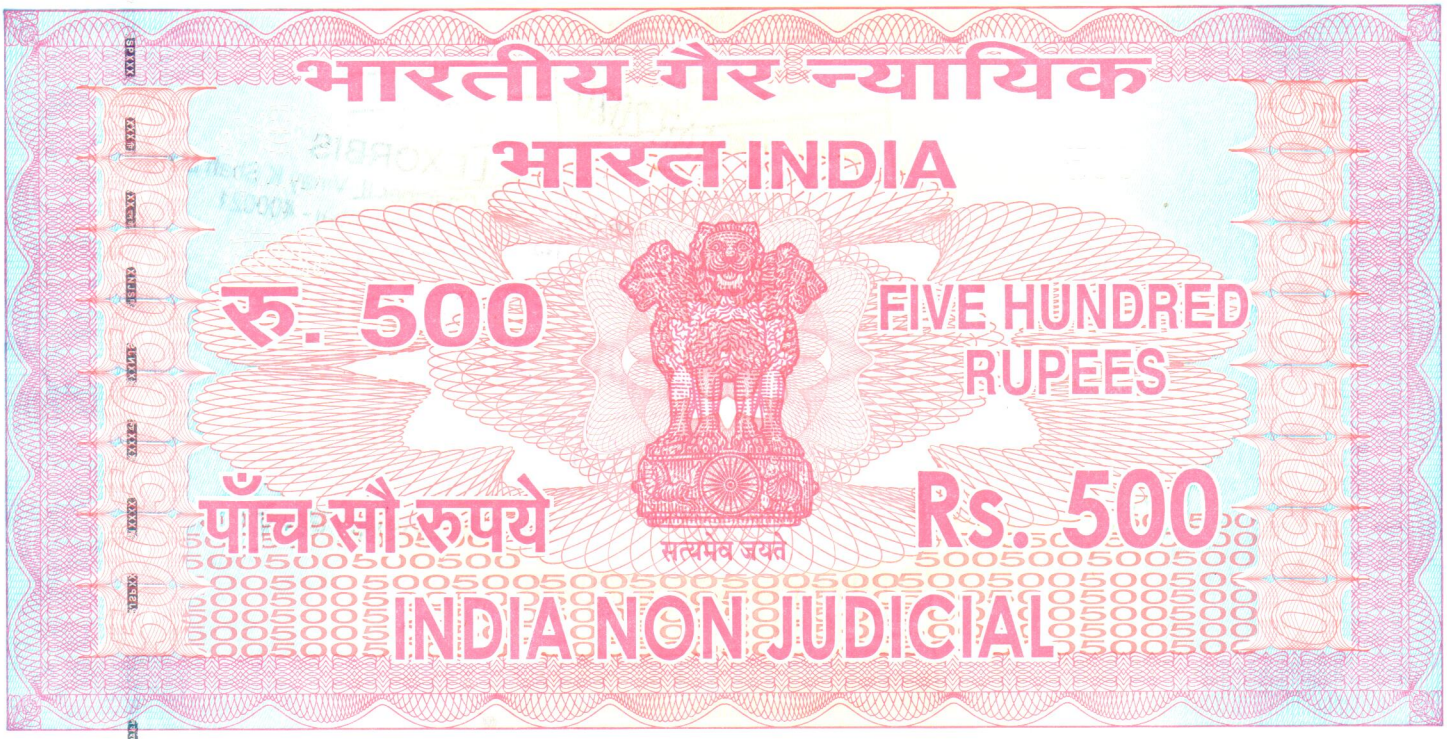
ADDITIONAL-EMAIL (As Per Record)	Manisha@lexorbis.com
E-MAIL (UPDATED Online)	
PRIORITY DATE	
REQUEST FOR EXAMINATION DATE	19/03/2020
PUBLICATION DATE (U/S 11A)	17/09/2021
REPLY TO FER DATE	24/02/2022



महाराष्ट्र MAHARASHTRA ◑ 2020 ◑ AW 604955

प्रधान मुद्रांक कार्यालय, मुंबई
28 FEB 2020
सक्षम अधिकारी

STAMP DUTY FOR POWER OF ATTORNEY IN THE NAME OF डी. सी. टी. आंबेकर

Bhaveshkumar N. Pasi having address at Bhartiya Vidya Bhavan's Sardar Patel College of Engineering, Bhavan's Campus, Munshi Nagar, Andheri (west), Mumbai – 400058, Maharashtra, India;

Subhash K. Mahajan having address at Directorate of Technical Education, 3, Mahapalika Marg, Dhobi Talao, Chhatrapati Shivaji Terminus Area, Fort, Mumbai – 400001, Maharashtra, India; and

Santosh B. Rane of Indian Nationality, having address at Bhartiya Vidya Bhavan's Sardar Patel College of Engineering, Bhavan's Campus, Munshi Nagar, Andheri (west), Mumbai – 400058, Maharashtra, India

FORM –26
THE PATENTS ACT, 1970
(39 OF 1970)
&
THE PATENTS (AMENDMENT) RULES, 2016
GENERAL POWER OF ATTORNEY

FORM FOR AUTHORIZATION OF A PATENT AGENT/ OR ANY PERSON IN A MATTER OR PROCEEDING UNDER THE ACT

जोडपत्र - २ Annexure - II

दस्ताचा प्रकार	
दस्त नोंदणी करणार अर्जदार	YES/NO
नियक्तीचे पत्र	
मुद्रांक [illegible] नाव	
दुसऱ्या पक्षकाराचे नाव	
दस्तऐवज करून देणाऱ्या पक्षकाराचे नाव व पत्ता	
मुद्रांक शुल्क रक्कम	
मुद्रांक विक्री बाँड धारकाची सही	
मुद्रांक विक्रेत्याची सही	
मुद्रांक विक्रेत्याची सही	

पावती क्रमांक : ६०००७४

मुद्रांक विक्रीचे ठिकाण/पत्ता: मुख्य शाखा [illegible], मुंबई
दि महाराष्ट्र गॅस्केट्स ॲन्ड [illegible]
मंत्रालय -४०० ०३२

ज्या कारणासाठी ज्यांनी [illegible]

मुद्रांक खरेदी केल्याचा [illegible]

16 MAR 2020

146 Jolly Maker Chamber II, Vinay K Shah Marg,
Nariman Point, Mumbai - 400021

Bhavesh Kumar N. Pagi
Editor

N. D. Ubhare MSI

भगवान गणपत म्हात्रे

16 MAR 2020

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THE PATENTS (AMENDMENT) RULES, 2006
Form for Authorization of a Patent Agent/ or Any Person in a Matter or Proceeding Under the Act
[*Refer* sections 127 and 132; and rule 135]

I, **Bhaveshkumar N. Pasi** of Indian Nationality having address at Bhartiya Vidya Bhavan's Sardar Patel College of Engineering, Bhavan's Campus, Munshi Nagar, Andheri (west), Mumbai – 400058, Maharashtra, India and **Subhash K. Mahajan** of Indian Nationality having address at Directorate of Technical Education, 3, Mahapalika Marg, Dhobi Talao, Chhatrapati Shivaji Terminus Area, Fort, Mumbai – 400001, Maharashtra, India and **Santosh B. Rane** of Indian Nationality, having address at Bhartiya Vidya Bhavan's Sardar Patel College of Engineering, Bhavan's Campus, Munshi Nagar, Andheri (west), Mumbai – 400058, Maharashtra, India, do hereby authorize Ms. Manisha Singh (IN/PA-740), Mr. Rajeev Kumar (IN/PA-1128), Ms. Omana Ramakrishnan (IN/PA-501), Ms. Preeti Tyagi (IN/PA-1441), Dr. Neetu Kumari (IN/PA-2176), Ms. Preeti Sharma (IN/PA-861), Dr. Pradeep Kumar Kamal (IN/PA-1306), Mr. Rahul Sharma (IN/PA-1649), Mr. Joginder Singh (IN/PA -1923), Ms. J Lavanya (IN/PA-2327), Mr. Pankaj Musyuni (IN/PA-2616), Mr. Siddharth Sharma (IN/PA-2757), Mr. Piyush Sharma (IN/PA-2777), Mr. Manish Aryan (IN/PA-2892), Mr. Ajay Kaushik (IN/PA-2159), Ms. Sanjeeta Das (IN/PA-2496), Mr. Akash Dixit (IN/PA-3578); Neha Ramani (IN/PA-2323), Rebecca Mathai (IN/PA-2623) Registered Patent Agents;

and

Mr. M.R. Ramesh Babu (D/555-A/1984), Mr. Abhai Pandey (UP/925/95), Ms. Amaya Singh (D/1653/2003), Mr. Varun Sharma (D/1486/05), Mr. Omesh Puri (D/2535/2006), Mr. Pranab Sanyal (D/199/2011), Mr. Gautam Kumar (D/463/15), Harshada Wadkar (MAH/4602/2014), Dimple Aswani (MAH/5906/2016) Advocates of **LEXORBIS, having their registered office at 709/710 Tolstoy House, 15-17 Tolstoy Marg, New Delhi – 110 001, India and 606-607, 6th Floor, Gamma Block, Sigma Soft Tech Park, No.7 Whitefield Main Road, Varthur Hobli, Bengaluru – 560066, India and 146 Jolly Maker Chamber II, Vinay K Shah Marg, Nariman Point, Mumbai – 400021, India** to act jointly or severally as our agents for all matters connected with THE PATENTS ACT, 1970 proceedings, filing and prosecution of our Indian Patent Applications, filing of request for Foreign Filing Permission in our name and in all matters and proceedings before and subsequent to the grant of such letters patent including pre-grant and post-grant oppositions thereon, renewals thereof, filing of Statements of working thereof, amendments thereof or of the application, specification or any other document filed in respect thereof, restorations thereof, registrations of any license, mortgage, assignment transfer or other interest in respect thereof, or change in our name, address or address for Service and in general to do all acts or things as the said Advocates/Agents may deem necessary or expedient and request that all notices, requisitions and communications relating thereto may be sent to

such person at the above address unless otherwise specified. This authorization includes the right to appoint substitutes.

We hereby revoke all previous authorizations, if any made, in respect of same matter or proceeding.

We hereby assent to the action already taken by the said person in the above matter.

Dated this the 17th day of March, 2020

_____ (Signature)
Name of the Applicant: Bhaveshkumar N. Pasi

_____ (Signature)
Name of the Applicant: Subhash K. Mahajan

_____ (Signature)
Name of the Applicant: Santosh B. Rane

To
The Controller of Patents
The Patent Office,
At Delhi, Mumbai, Chennai, Kolkata

FORM 5
THE PATENTS ACT, 1970
(39 OF 1970)
&
THE PATENTS [AMENDMENT] RULES, 2006
DECLARATION AS TO INVENTORSHIP
[See section 10(6) and rule 13(6)]

1. NAME OF APPLICANTS:	1. PASI, Bhaveshkumar N. 2. MAHAJAN, Subhash K. 3. RANE, Santosh B.

hereby declare that the true and first inventor of the invention disclosed in the complete specification filed in pursuance of our application numbered _____ dated March 16, 2020, are:

2. INVENTOR:

a) Name : PASI, Bhaveshkumar N.
b) Nationality : IN
c) Address : Bhartiya Vidya Bhavan's Sardar Patel College of Engineering, Bhavan's Campus, Munshi Nagar, Andheri (west), Mumbai-400058, Maharashtra, India

a) Name : MAHAJAN, Subhash K.
b) Nationality : IN
c) Address : Directorate of Technical Education, 3, Mahapalika Marg, Dhobi Talao, Chhatrapati Shivaji Terminus Area, Fort, Mumbai-400001, Maharashtra, India

a) Name : RANE, Santosh B.
b) Nationality : IN
c) Address : Bhartiya Vidya Bhavan's Sardar Patel College of Engineering, Bhavan's Campus, Munshi Nagar, Andheri (west), Mumbai-400058, Maharashtra, India.

Dated this 16th day of March, 2020

Manisha Singh
Agent for the Applicant [IN/PA –740]
LEXORBIS

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

1. PASI, Bhaveshkumar N.
2. MAHAJAN, Subhash K.
3. RANE, Santosh B.

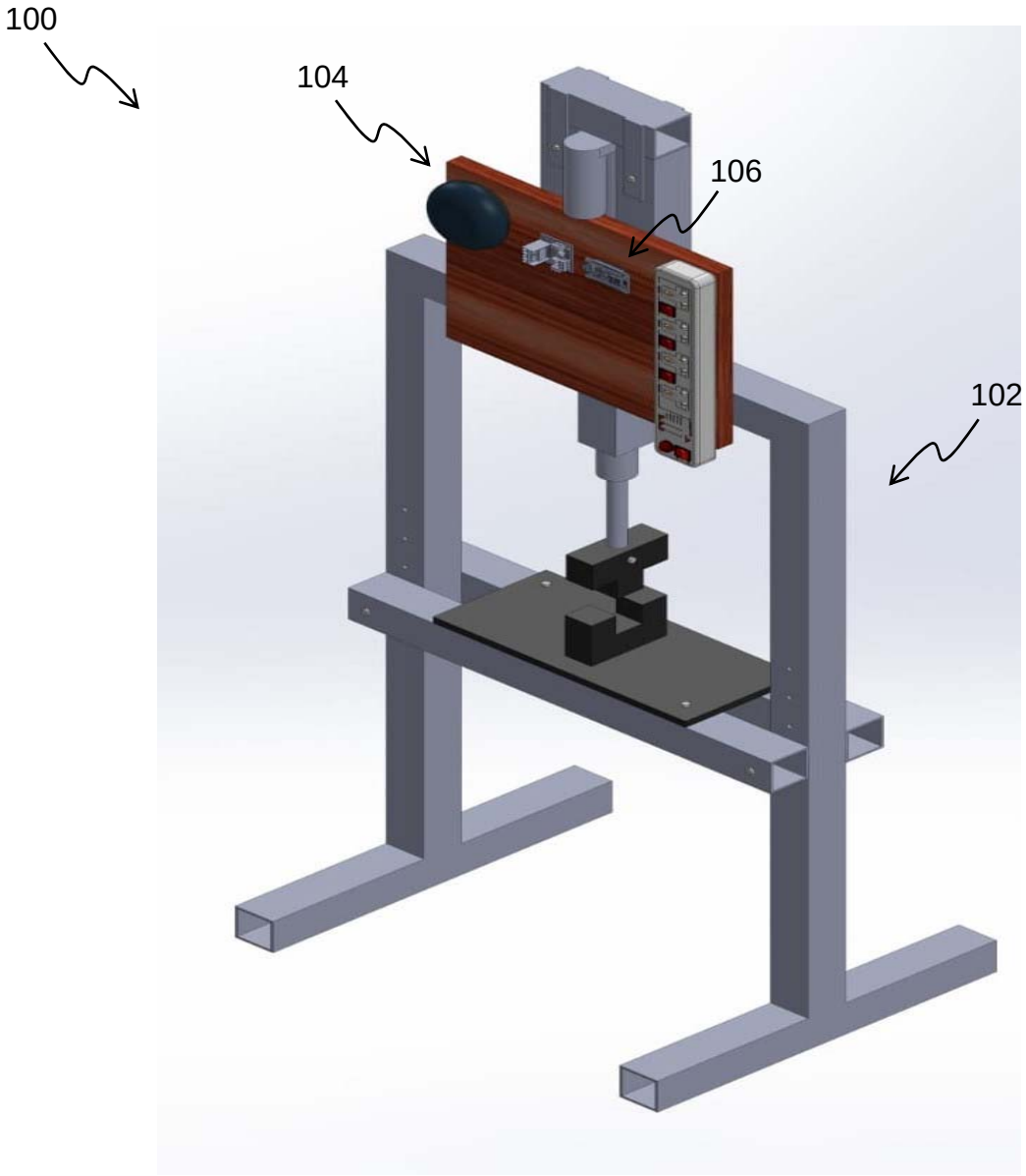

FIGURE 1

Manisha Singh
Agent for the Applicant [IN/PA-740]
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1. PASI, Bhaveshkumar N.
2. MAHAJAN, Subhash K.
3. RANE, Santosh B.

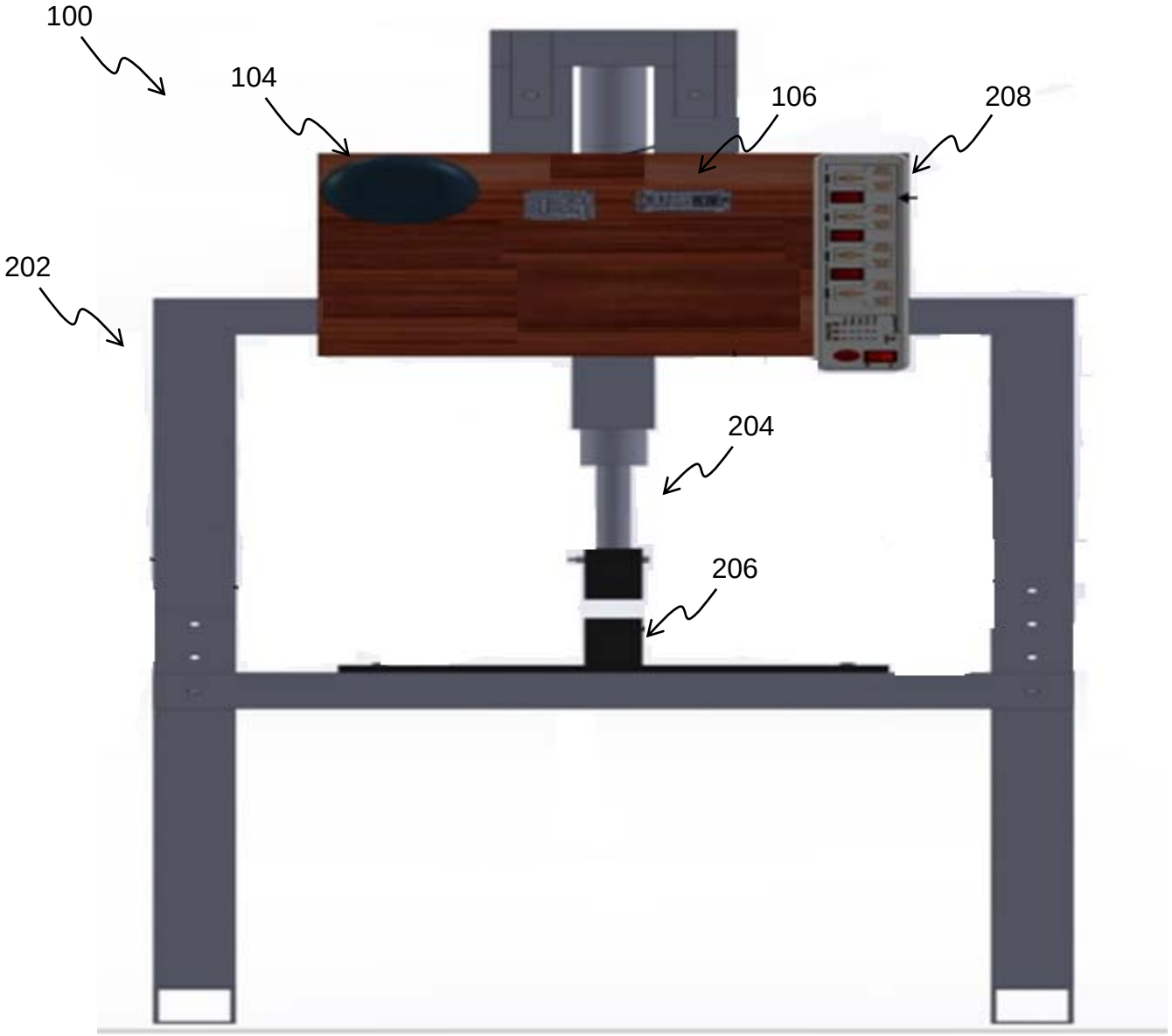

FIGURE 2

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1. PASI, Bhaveshkumar N.
2. MAHAJAN, Subhash K.
3. RANE, Santosh B.

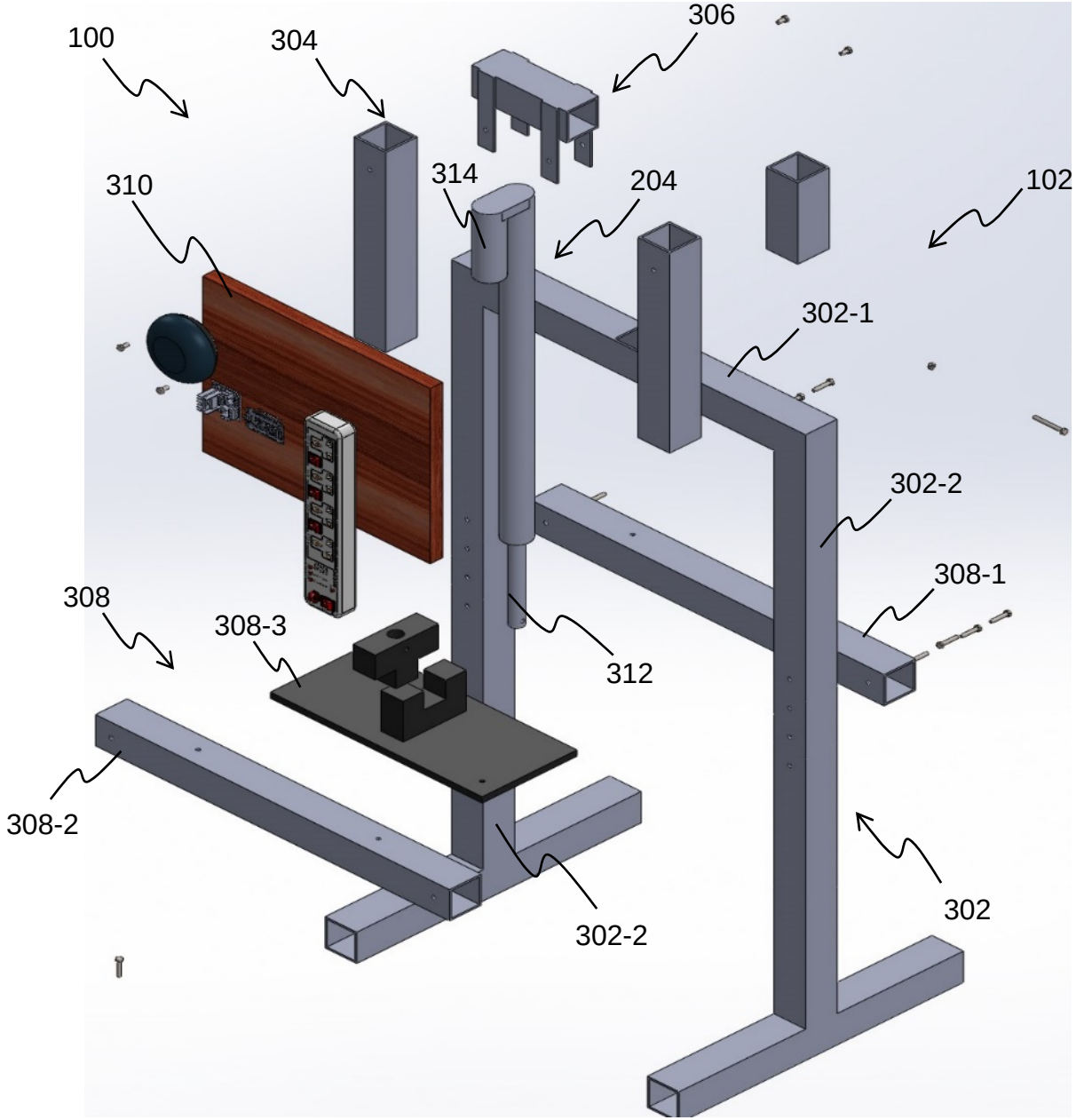

FIGURE 3

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1. PASI, Bhaveshkumar N.
2. MAHAJAN, Subhash K.
3. RANE, Santosh B.

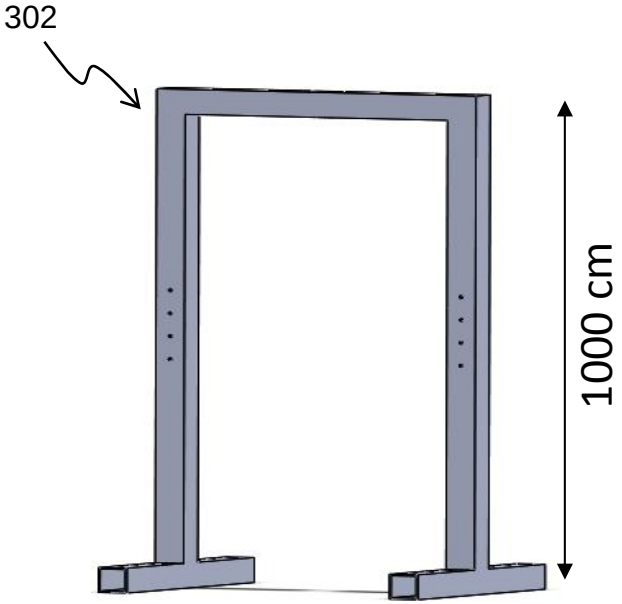

FIGURE 4a

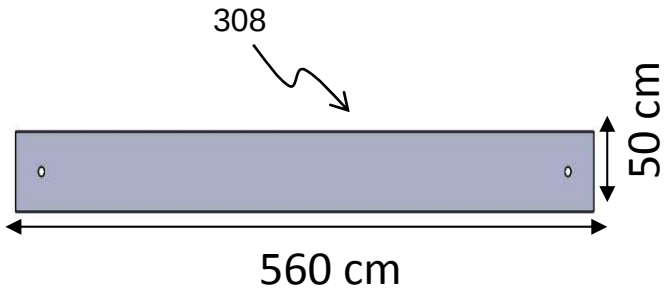

FIGURE 4b

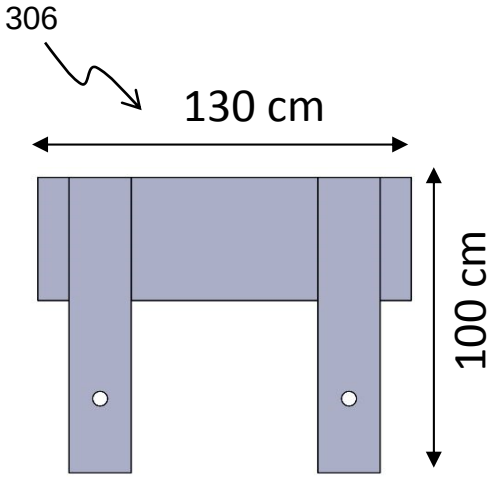

FIGURE 4c

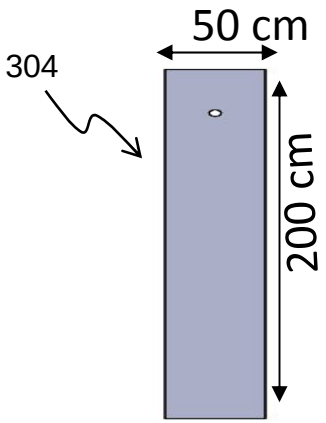

FIGURE 4d

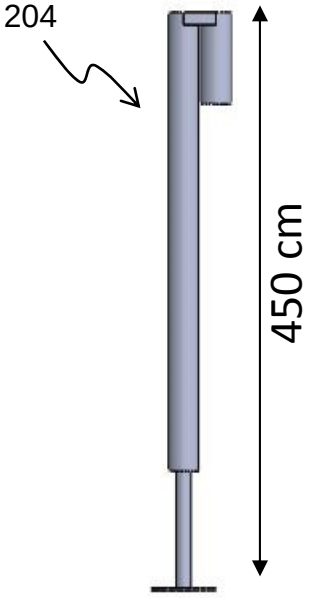

FIGURE 4e

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3. RANE, Santosh B.

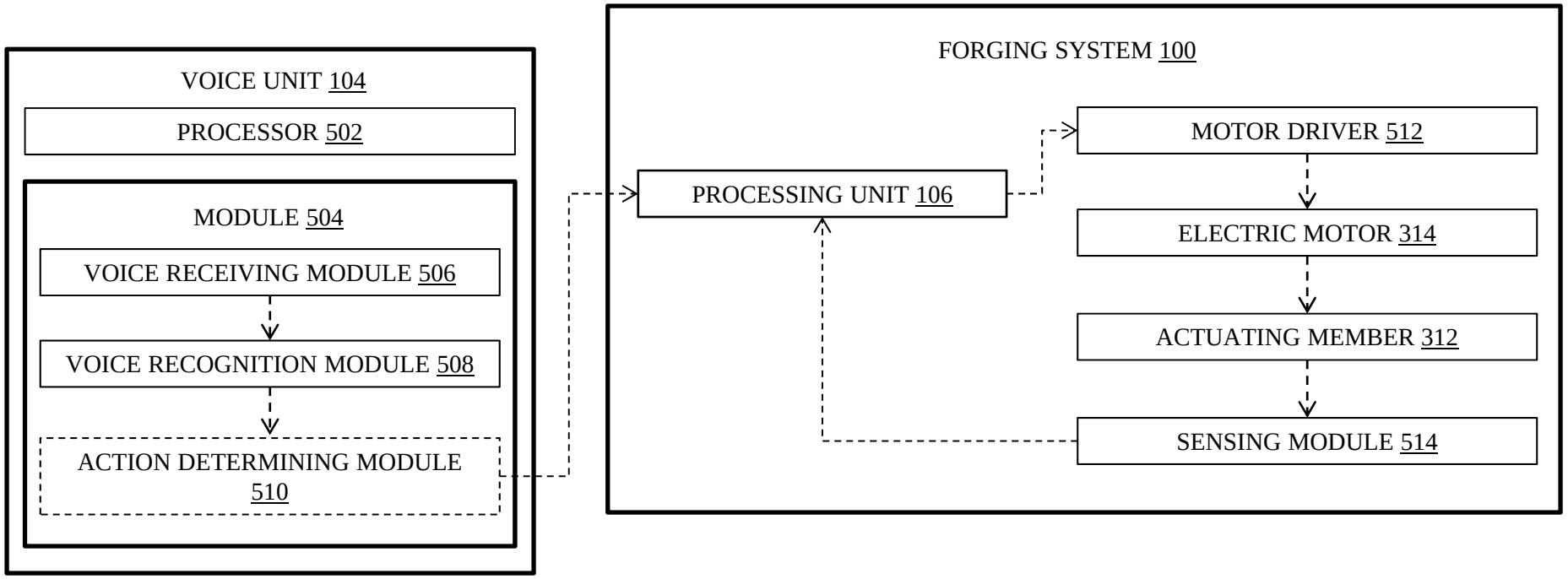

FIGURE 5

Manisha Singh
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1. PASI, Bhaveshkumar N.
2. MAHAJAN, Subhash K.
3. RANE, Santosh B.

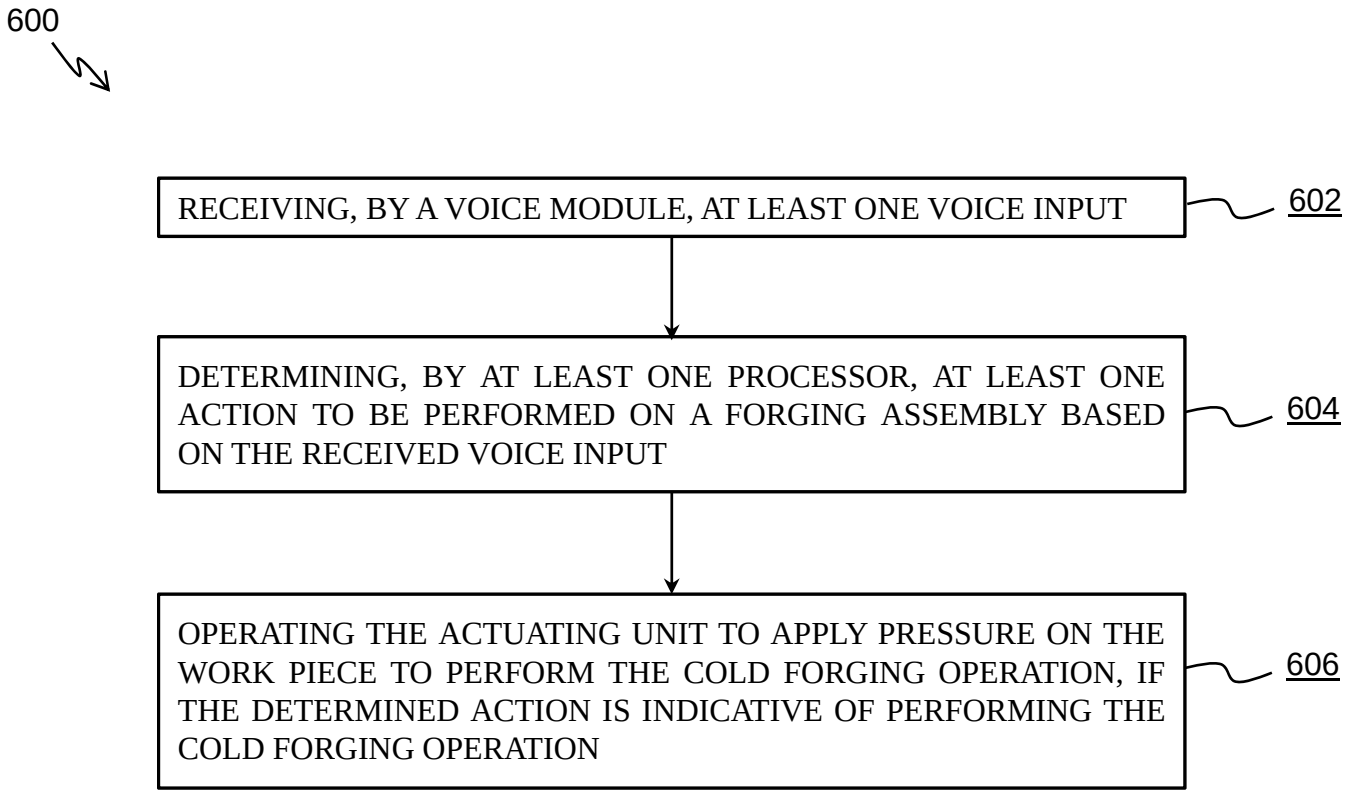

FIGURE 6

Manisha Singh
Agent for the Applicant [IN/PA-740]
LEXORBIS

FORM 18

THE PATENT ACT, 1970
(39 of 1970)
&
THE PATENTS RULES, 2003

REQUEST/EXPRESS REQUEST FOR EXAMINATION OF APPLICATION FOR PATENT

[See section 11B and rules 20(4) (ii),24B (1) (i)]

1. APPLICANT(S)/OTHER INTERESTED PERSON(S):

(a) Name :1. PASI, Bhaveshkumar N.
2. MAHAJAN, Subhash K.
3. RANE, Santosh B.
(b) Nationality :1 .India
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3 .India
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2 .Directorate of Technical Education, 3, Mahapalika Marg, Dhobi Talao, Chhatrapati Shivaji Terminus Area, Fort, Mumbai-400001, Maharashtra, India
3 .Bhartiya Vidya Bhavan's Sardar Patel College of Engineering, Bhavan's Campus, Munshi Nagar, Andheri (west), Mumbai-400058, Maharashtra, India
(d) Date Of Publication Under Section 11A :

2. STATEMENT IN CASE OF REQUEST FOR EXAMINATION MADE BY THE APPLICANT(S)

We PASI, Bhaveshkumar N. , MAHAJAN, Subhash K. , RANE, Santosh B. hereby request that our application for patent invention number 202021011320 filed on 16 Mar 2020 for the titled A SYSTEM AND A METHOD FOR PERFORMING FORGING OPERATION shall be examined under section 12 and 13 of the Act.

4. ADDRESS FOR SERVICE

LEXORBIS 709/710, Tolstoy House 15-17, Tolstoy Marg, New Delhi – 110 001 Telephone No. 91 11 23716565. Mobile No. 9811161518. Fax No. 91 11 23716556. E-MAIL ID-mail@lexorbis.com

Dated this(Final Payment Date):----------
Manisha Singh
Agent for the Applicant [IN/PA-740]

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

This form is electronically generated.

FORM 2
THE PATENTS ACT 1970
(39 of 1970)
&
The Patents [Amendment] Rules, 2006
COMPLETE SPECIFICATION

(See section 10 and rule 13)

1. TITLE OF THE INVENTION

A System And A Method For Performing Forging Operation

2. APPLICANTS

NAME : PASI, Bhaveshkumar N.

NATIONALITY : IN

ADDRESS : Bhartiya Vidya Bhavan's Sardar Patel College of Engineering, Bhavan's Campus, Munshi Nagar, Andheri (west), Mumbai-400058, Maharashtra, India

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ADDRESS : Directorate of Technical Education, 3, Mahapalika Marg, Dhobi Talao, Chhatrapati Shivaji Terminus Area, Fort, Mumbai-400001, Maharashtra, India

NAME : RANE, Santosh B.

NATIONALITY : IN

ADDRESS : Bhartiya Vidya Bhavan's Sardar Patel College of Engineering, Bhavan's Campus, Munshi Nagar, Andheri (west), Mumbai-400058, Maharashtra, India

3. PREAMBLE TO THE DESCRIPTION

COMPLETE

The following specification particularly describes the invention and the manner in which it is to be performed.

FIELD OF THE INVENTION

The present disclosure relates to forging operation, more particularly, to a voice-assisted forging system and a method for performing a forging operation.

BACKGROUND

Forging is one of metalworking processes used for shaping a metal object by applying localized force on such object. Traditionally, forging was performed by a smith using hammer and anvil. The smithy or forge has evolved over centuries to become a facility with engineered processes, production equipment, tooling, and products to meet the demand of modern Industry. In modern times, industrial forging is done either with presses or with hammers powered by compressed air, electricity, hydraulics or steam. However, such aforesaid forging techniques involve manual intervention to perform a forging operation on the metal object. Owing to manual intervention, the overall accuracy of performing the forging operation is substantially reduced. This results in numerous defects in the forged products which further lead to a higher rejection rate of such products. Further, the aforesaid forging techniques require excess energy to perform the forging operation owing to the higher rejection rate of forged products. Also, trained manpower is required to perform the forging operation using the aforesaid forging techniques. Therefore, there is a need for an improved solution for performing the forging operation.

SUMMARY

This summary is provided to introduce a selection of concepts, in a simplified format, that are further described in the detailed description of the invention. This summary is neither intended to identify key or essential inventive concepts of the invention and nor is it intended for determining the scope of the invention.

In an embodiment, a voice-assisted forging system to perform forging operation is disclosed. The voice-assisted forging system includes a forging assembly having a frame assembly for supporting a die adapted to hold a work piece. The forging assembly includes an actuating unit adapted to apply pressure on the work piece positioned on the die. Further, the

voice-assisted forging system includes a voice module configured to receive at least one voice input. The voice-assisted forging system includes at least one processor in communication with the voice module and the actuating unit. The at least one processor is configured to determine at least one action to be performed on the forging assembly based on the at least one voice input received by the voice module. The at least one processor is configured to operate the actuating unit to apply pressure on the work piece to perform the forging operation, if the determined action is indicative of performing the forging operation

In another embodiment, a method for performing forging operation on a work piece using a voice-assisted forging system. The method includes receiving, by a voice module, at least one voice input. Further, the method includes determining, by at least one processor, at least one action to be performed on a forging assembly based on the received voice input. The forging assembly includes a frame assembly for supporting a die adapted to hold the work piece. Further, the forging assembly includes an actuating unit adapted to apply pressure on the work piece positioned on the die. The method includes operating the actuating unit to apply pressure on the work piece to perform the forging operation, if the determined action is indicative of performing the forging operation.

To further clarify advantages and features of the present invention, a more particular description of the invention will be rendered by reference to specific embodiments thereof, which is illustrated in the appended drawings. It is appreciated that these drawings depict only typical embodiments of the invention and are therefore not to be considered limiting of its scope. The invention will be described and explained with additional specificity and detail with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

These and other features, aspects, and advantages of the present invention will become better understood when the following detailed description is read with reference to the accompanying drawings in which like characters represent like parts throughout the drawings, wherein:

Figure 1 illustrates a perspective view of a voice-assisted forging system for performing forging operation, according to an embodiment of the present disclosure;

Figure 2 illustrate a front view of the voice-assisted forging system, according to an embodiment of the present disclosure;

Figure 3 illustrates an exploded view of the voice-assisted forging system, according to an embodiment of the present disclosure;

Figures 4a-4e illustrate various components of the voice-assisted forging system, according to an embodiment of the present disclosure;

Figure 5 illustrates a schematic view of the voice-assisted forging system depicting operation of the voice-assisted forging system for performing forging operation, according to an embodiment of the present disclosure; and

Figure 6 illustrates a flowchart depicting a method for performing forging operation on a work piece, according to an embodiment of the present disclosure.

Further, skilled artisans will appreciate that elements in the drawings are illustrated for simplicity and may not have been necessarily been drawn to scale. For example, the flow charts illustrate the method in terms of the most prominent steps involved to help to improve understanding of aspects of the present invention. Furthermore, in terms of the construction of the device, one or more components of the device may have been represented in the drawings by conventional symbols, and the drawings may show only those specific details that are pertinent to understanding the embodiments of the present invention so as not to obscure the drawings with details that will be readily apparent to those of ordinary skill in the art having benefit of the description herein.

DETAILED DESCRIPTION OF FIGURES

For the purpose of promoting an understanding of the principles of the invention, reference will now be made to the embodiment illustrated in the drawings and specific language will be used to describe the same. It will nevertheless be understood that no limitation of the scope of

the invention is thereby intended, such alterations and further modifications in the illustrated system, and such further applications of the principles of the invention as illustrated therein being contemplated as would normally occur to one skilled in the art to which the invention relates.

Embodiments of the present invention will be described below in detail with reference to the accompanying drawings.

Figure 1 illustrates a perspective view of a voice-assisted forging system 100 for performing forging operation, according to an embodiment of the present disclosure. In an embodiment, the voice-assisted forging system 100 may interchangeably be referred to as the forging system 100, without departing from the scope of the present disclosure. The forging system 100 may be employed for performing a forging operation of a work piece. In an embodiment, the forging system 100 may be adapted to perform the forging operation based on voice inputs received from a user. The forging operation may be embodied as a cold forging operation and therefore, interchangeably referred to as the cold forging operation.

Figure 2 illustrates a front view of the voice-assisted forging system 100, according to an embodiment of the present disclosure. **Figure 3** illustrates an exploded view of the voice-assisted forging system 100, according to an embodiment of the present disclosure. Referring to Figure 1, Figure 2, and Figure 3, the forging system 100 may include, but is not limited to, a forging assembly 102, a voice module 104, and a processing unit 106. In an embodiment, the forging assembly 102 may be adapted to support various sub-components, such as the voice module 104 and the processing unit 106, of the forging system 100. Constructional details and operation details of the forging system 100 are explained in subsequent sections of the present disclosure.

Figures 4a-4e illustrate various components of the voice-assisted forging system 100, according to an embodiment of the present disclosure. Referring to Figure 1, Figure 2, Figure 3, and Figures 4a, in an embodiment, the forging assembly 102 may include a frame assembly 202 and an actuating unit 204 supported on the frame assembly 202. The frame assembly 202 may be provided for supporting a die 206 adapted to hold the work piece. Referring to Figure 4a, in an

embodiment, the frame assembly 202 may include a main body 302, an upper body 304, a support head 306, a support bed 308, and a supporting panel 310.

Referring to Figure 2, Figure 3, and Figure 4a, in an embodiment, the main body 302 may include a horizontal member 302-1 and a pair of vertical members 302-2. The first horizontal member 302-1 may be adapted to be coupled to each of the pair of vertical members 302-2. In an embodiment, the pair of vertical members 302-2 may interchangeably be referred to as the vertical members 302-2, without departing from the scope of the present disclosure. The horizontal member 302-1 may be adapted to support the upper body 304 and the support head 306. Further, the vertical members 302-2 may be adapted to be coupled to the support bed 308.

In an embodiment, referring to Figure 1 and Figure 4b, the support bed 308 may be oriented in a horizontal direction with respect to each of the vertical members 302-2. The support bed 308 may be adapted to support the die 206 for holding the work piece. In the illustrated embodiment, the support bed 308 may include a first horizontal member 308-1 and a second horizontal member 308-2. Each of the first horizontal member 308-1 and the second horizontal member 308-2 may be removably coupled to the vertical members 302-2. Further, the support bed 308 may include a supporting member 308-3 adapted to be coupled to each of the first horizontal member 308-1 and the second horizontal member 308-2. The supporting member 308-3 may be adapted to support the die 206 for holding the work piece.

Further, as explained earlier, the forging system 100 may include the actuating unit 204 adapted to apply pressure on the work piece positioned on the die 206. Referring to Figure 1, Figure 2, and Figure 3, in an embodiment, the actuating unit 204 may include an actuating member 312 and an electric motor 314. The actuating member 312 may be in communication with the electric motor 314. The actuator member may be movably coupled to the upper body and the support head of the frame assembly 202. The actuating member 312 may be adapted to reciprocate in a vertical direction with respect to the support bed 308 to apply pressure on the work piece. The actuating member 312 may be adapted to reciprocate in a vertical direction with respect to the support bed 308 to apply the pressure on the work piece.

In an embodiment, the actuator member may be embodied as an electrical actuator, without departing from the scope of the present disclosure. The actuating member 312 may be

adapted to apply a predefined force on the work piece supported on the die 206 for performing the cold forging operation. In an example, the actuator member may have a torque of 9 Nm and adapted to apply a force of 1500 N on the work piece. Further, the electric motor 314 may be adapted to drive the actuating member 312 in the vertical direction to perform the cold forging operation. In an embodiment, the electric motor 314 may be embodied as a 12 volt DC motor, without departing from the scope of the present disclosure.

In an embodiment, the electric motor 314 may be in communication with the processing unit 106 and the actuating member 312. The electric motor 314 may be configured to operate the actuating member 312 based on input received from the processing unit 106. Constructional and operational details of the processing unit 106 are explained in subsequent sections of the present disclosure. In an embodiment, the processing unit 106 may be in communication with the voice module 104. The voice module 104 may be positioned on the supporting panel 310 of the frame assembly 202. The voice module 104 may interchangeably be referred to as the voice unit 104, without departing from the scope of the present disclosure.

Figure 5 illustrates a schematic view of the voice-assisted forging system 100 depicting operation of the voice-assisted forging system 100 for performing cold forging operation, according to an embodiment of the present disclosure. Referring to Figure 2, Figure 3, and Figure 5, the voice unit 104 may include a processor 502, memory, module(s) 504, and data. The module(s) 504 and the memory are coupled to the processor 502. The processor 502 can be a single processing unit or a number of units, all of which could include multiple computing units. The processor 502 may be implemented as one or more microprocessors, microcomputers, microcontrollers, digital signal processors, central processing units, state machines, logic circuitries, and/or any devices that manipulate signals based on operational instructions. Among other capabilities, the processor 502 is configured to fetch and execute computer-readable instructions and data stored in the memory.

The memory may include any non-transitory computer-readable medium known in the art including, for example, volatile memory, such as static random access memory (SRAM) and dynamic random access memory (DRAM), and/or non-volatile memory, such as read-only memory (ROM), erasable programmable ROM, flash memories, hard disks, optical disks, and magnetic tapes.

The module(s) 504, amongst other things, include routines, programs, objects, components, data structures, etc., which perform particular tasks or implement data types. The module(s) 504 may also be implemented as, signal processor(s), state machine(s), logic circuitries, and/or any other device or component that manipulate signals based on operational instructions.

Further, the module(s) 504 may be implemented in hardware, instructions executed by at least one processing unit, e.g., the processor 502, or by a combination thereof. The processing unit may comprise a computer, a processor, a state machine, a logic array and/or any other suitable devices capable of processing instructions. The processing unit may be a general-purpose processor which executes instructions to cause the general-purpose processor to perform operations or, the processing unit may be dedicated to perform the required functions. In some example embodiments, the module(s) 504 may be machine-readable instructions (software, such as web-application, mobile application, program, etc.) which, when executed by a processor/processing unit, perform any of the described functionalities.

In an implementation, the module(s) 504 may include a voice receiving module 506, a voice recognition module 508, and an action determining module 510. The voice receiving module 506, the voice recognition module 508, and the action determining module 510 are in communication with each other. The data serves, amongst other things, as a repository for storing data processed, received, and generated by one or more of the modules 504. In another implementation, the action determining module 510 may be deployed in a server, such as a cloud platform, without departing from the scope of the present disclosure. In such an implementation, the server may be in communication with the voice unit 104 of the forging system 100.

The voice unit 104 may be configured to receive at least one voice input. In an embodiment, the at least one voice input may interchangeably be referred to as the voice input, without departing from the scope of the present disclosure. In an embodiment, the voice receiving module 506 may be adapted to receive the voice input from a user. In an embodiment, the voice receiving module 506 may in communication with a microphone of the voice unit 104, without departing from the scope of the present disclosure. In such an embodiment, the voice receiving module 506 may receive the voice input through the microphone of the voice unit 104.

Further, the voice receiving module 506 may be in communication with the voice recognition unit of the voice module 104. The voice recognition module 508 may be configured to receive the voice input from the voice receiving module 506. In an embodiment, the voice recognition module 508 may be configured to convert the received voice input into a corresponding text command. The voice recognition module 508 may be embodied as one of an Automatic Speech Recognition (ASR), Computer Speech Recognition (CSR), and Speech-to-Text (STT). The voice recognition module 508 may be configured to perform various speech processing techniques including, but not limited to, Natural Language Processing (NLP) and Natural Language Understanding (NLU) on the received voice input, without departing from the scope of the present disclosure

The voice recognition module 508 may be in communication with the action determining module 510. The action determining module 510 may be configured to determine at least one action to be performed on the forging assembly 102 based on the received voice input by the voice unit 104. In an embodiment, the action determining module 510 may be configured to receive the text command associated with the voice input from the voice recognition module 508.

In an embodiment, the action determining module 510 may be configured to determine context associated with the received voice input, based on the text command, from the voice recognition module 508. Based on the determined context, the action determining module 510 may determine the at least one action to be performed on the forging assembly 102. In another embodiment, the action determining module 510 may be configured to compare the text command with a set of pre-stored voice commands. In an embodiment, each of the set of pre-stored voice commands may be associated with an action to be performed on the forging assembly 102.

Based on the comparison, the action determining module 510 may determine whether the determined action is indicative of performing the cold forging operation. For instance, the voice unit 104 may receive a voice input “start forging operation” from a user. Based on the received voice input, the action determining module 510 may compare the received voice input with the set of pre-stored voice commands. Based on the comparison, the action determining module 510

may determine that the received voice input is indicative of performing the cold forging operation.

As explained earlier, the voice unit 104 may be in communication with the processing unit 106. In an embodiment, the processing unit 106 may be embodied as a NodeMCU WiFi Module, without departing from the scope of the present disclosure. The processing unit 106 may be positioned on the supporting panel 310 of the frame assembly 202 of the forging assembly 102. In an embodiment, the processing unit 106 may include a processor, memory, module(s), and data. The module(s) and the memory are coupled to the processor.

The processor can be a single processing unit or a number of units, all of which could include multiple computing units. The processor may be implemented as one or more microprocessors, microcomputers, microcontrollers, digital signal processors, central processing units, state machines, logic circuitries, and/or any devices that manipulate signals based on operational instructions. Among other capabilities, the processor is configured to fetch and execute computer-readable instructions and data stored in the memory.

In an embodiment, the processing unit 106 may be configured to operate the actuating unit 204 to apply pressure on the work piece to perform the cold forging operation. The processing unit 106 may be in communication with the voice unit 104 and the electric motor 314 of the actuating unit 204. The processing unit 106 may be configured to receive instruction indicative of operating the electric motor 314 of the forging assembly 102 from the voice unit 104. In particular, if the determined action is indicative of performing an action on the forging assembly 102, then the processing unit 106 may receive the instruction indicative of operating the electric motor 314 from the voice unit 104.

In an embodiment, the electric motor 314 may be configured to receive an input from the processing unit 106 based on the determined action and to operate the actuating member 312 based on the received input. Upon receiving the input from the processing unit 106, the electric motor 314 may operate the actuating member 312 in the vertical direction to perform the cold forging operation. In an embodiment, the forging system 100 includes a motor driver 512 in communication with the processing unit 106 and the electric motor 314.

In such an embodiment, the motor driver 512 may be configured to receive instruction, such as a low current signal, from the processing unit 106 to operate the electric motor 314. Upon receiving the instruction, the motor driver 512 may transmit a high current signal to the electric motor 314 to actuate the movement of the actuating member 312. The motor driver 512 may be positioned on the supporting panel 310 of the frame assembly 202. In an example, the motor driver 512 may be embodied as L293D motor driver, without departing from the scope of the present disclosure.

For instance, if the voice input is “initiate forging operation”, the processing unit 106 may receive the instruction indicative of switching-ON the electric motor 314 for moving the actuating member 312 to perform the cold forging operation. Further, if the voice input is “stop forging operation”, the processing unit 106 may receive the instruction indicative of switching-OFF the electric motor 314 for halting the movement of the actuating member 312.

Further, referring to Figure 1 and Figure 2, the forging system 100 may include a sensing module 514 in communication with the processing unit 106. The sensing module 514 may be positioned on the support bed 308 of the forging assembly 102. The sensing module 514 may be configured to detect at least one of a position and an orientation of the work piece on the support bed 308. In an embodiment, the sensing module 514 may be embodied as a proximity sensor, without departing from the scope of the present disclosure. The processing unit 106 may be configured to receive, from the sensing module 514, information associated with at least one of the position and the orientation of the work piece on the support bed 308.

Further, the processing unit 106 may be configured to operate, based on the information and the determined action, the electric motor 314 to move the actuating member 312 for performing the cold forging operation on the work piece. In an embodiment, the sensing module 514 may be configured to transmit information indicative of a difference of threshold value associated with the positioning of the work piece on the support bed 308. Based on the received information, the processing unit 106 may be configured to determine whether the position and the orientation of the work piece are accurate. Accordingly, if the position and the orientation of the work piece are accurate on the support bed 308, the processing unit 106 may transmit the input to the electric motor 314 for operating the actuating member 312 to perform the cold forging operation based on the voice input. In particular, the processing unit 106 may transmit

the input to the electric motor 314, if the position and the orientation of the work piece are accurate and the determined action associated with the voice input is indicative of performing the cold forging operation. In an embodiment, the forging system 100 may include a power unit 208 (shown in Figure 2) adapted to supply power to various sub-components, such as the voice unit 104, the processing unit 106, and the actuating unit 312, of the forging system 100.

In an embodiment, the processing unit 106 may be in communication with at least one electronic device. The at least one electronic device may be embodied as a smartphone, a laptop, a tablet, a Personal Digital Assistant, and a voice-assisted device, without departing from the scope of the present disclosure. In such an embodiment, the electronic device may include the voice module 104 configured to receive the at least one voice input. The electronic device may be in communication with the processing unit 106 through a network. The network may be a wired network or a wireless network. The network may include, but is not limited to, a mobile network, a broadband network, a Wide Area Network (WAN), a Local Area Network (LAN), and a Personal Area Network.

In such an embodiment, the forging assembly 102 may be operated remotely through the at least one electronic device to perform the cold forging operation. For instance, the at least one electronic device may receive the voice input indicative of performing the cold forging operation from the user. Subsequently, the at least one electronic device may transmit instruction indicative of operating the electric motor 314 to the processing unit 106 mounted on the forging system 100. Based on the received instruction, the processing unit 106 may operate the electric motor 314 to move the actuating member 312 in the vertical direction to perform the cold forging operation on the work piece.

Figure 6 illustrates a flowchart depicting a method for performing cold forging operation on a work piece, according to an embodiment of the present disclosure. For the sake of brevity, details of the present disclosure that are explained in details in the description of Figure 1, Figure 2, Figure 3, Figure 4a, Figure 4b, Figure 4c, Figure 4d, Figure 4e, and Figure 5 are not explained in detail in the description of Figure 6.

At block 602, the method 600 includes receiving the at least one voice input. In an embodiment, the voice unit 104 may be configured to receive the at least one voice input from a

user. At block 604, the method 600 includes determining the at least one action to be performed on the forging assembly 102 based on the received voice input. In an embodiment, the processing unit 106 may be configured to receive the at least one voice input from the voice unit 104. Based on the received voice input, the processing unit 106 may be configured to determine the at least one action to be performed on the forging assembly 102. In an embodiment, the at least one action may be indicative of performing the cold forging operation on the work piece. Further, the at least one action may be indicative of halting the cold forging operation.

At block 606, the method 600 includes operating the actuating unit 204 to apply pressure on the work piece to perform the cold forging operation, if the determined action is indicative of performing the cold forging operation. In an embodiment, the processing unit 106 may be configured to operate the actuating unit 204 to apply the pressure on the work piece to perform the cold forging operation. In particular, the processing unit 106 may actuate the electric motor 314 to operate the actuating member 312 of the actuating unit 204 to apply the pressure on the work piece.

As would be gathered, the present disclosure discloses the forging system 100 and the method 600 for performing the forging operation based on the voice input. As mentioned earlier, the forging system 100 may include the voice unit 104 and the processing unit 106 in communication with the voice unit 104 and the actuating unit 204. The processing unit 106 may be configured to operate the actuating unit 204 to perform the cold forging operation, based on the voice input received by the voice unit 104. Therefore, the overall requirement of human intervention for performing the cold forging operation is substantially eliminated. This results in substantial improvement in the overall quality of forged products manufactured by the forging system 100.

Owing to the manufacturing of high-quality products, the overall rejection rate of products is substantially reduced and production rate is substantially increased. Further, the overall weight of the forging system 100 is substantially less than conventional forging machines. Also, the overall cost involved in forging the work piece is substantially reduced as the forging system 100 eliminates the requirement of the trained workforce for performing the forging system 100. Further, as explained earlier, the forging system 100 can be operated remotely through the at least one electronic device in communication with the processing unit 106. This substantially

enhances the overall user experience while performing the cold forging operation using the forging system. This also eliminates the requirement of a worker to be physically present in the vicinity of the forging system for performing the cold forging operation which further eliminates the possibility of any unfortunate accident during operation of the forging system 100.

While specific language has been used to describe the present subject matter, any limitations arising on account thereto, are not intended. As would be apparent to a person in the art, various working modifications may be made to the method in order to implement the inventive concept as taught herein. The drawings and the foregoing description give examples of embodiments. Those skilled in the art will appreciate that one or more of the described elements may well be combined into a single functional element. Alternatively, certain elements may be split into multiple functional elements. Elements from one embodiment may be added to another embodiment.

WE CLAIM:

1. A voice-assisted forging system to perform forging operation on a work piece, the voice-assisted forging system comprising:

a forging assembly comprising:

a frame assembly for supporting a die adapted to hold the work piece;

an actuating unit adapted to apply pressure on the work piece positioned on the die;

a voice module configured to receive at least one voice input; and

at least one processor in communication with the voice module and the actuating unit, wherein the at least one processor is configured to:

determine at least one action to be performed on the forging assembly based on the at least one voice input received by the voice module; and

operate the actuating unit to apply pressure on the work piece to perform the forging operation, if the determined action is indicative of performing the forging operation.

2. The voice-assisted forging system as claimed in claim 1, wherein the forging assembly includes the frame assembly having a main body, an upper body, a support head, and a support bed, wherein the support bed is adapted to support the die for holding the work piece.

3. The voice-assisted forging system as claimed in claim 1, wherein the actuating unit includes an actuating member and an electric motor, the actuating unit is adapted to reciprocate in a vertical direction with respect to the support bed to apply the pressure on the work piece.

4. The voice-assisted forging system as claimed in claim 3, wherein the electric motor is in communication with the at least one processor and the actuating member, the electric motor is configured to receive input from the at least one processor based on the determined action and to operate the actuating member based on the received input.

5. The voice-assisted forging system as claimed in claim 1 further comprising a sensing module in communication with the at least one processor, wherein the sensing module is configured to detect at least one of a position and an orientation of the work piece on the support bed.

6. The voice assisted forging system as claimed in claim 5, wherein the at least one processor is configured to:

receive, from the sensing module, information associated with at least one of the position and the orientation of the work piece on the support bed; and

operate, based on the information and the determined action, the electric motor to move the actuating member for performing the forging operation on the work piece.

7. The voice assisted forging system as claimed in claim 1, wherein the at least one processor is in communication with an electronic device, wherein the electronic device includes the voice module configured to receive the at least one voice input.

8. A method for performing forging operation on a work piece using a voice-assisted forging system, the method comprising:

receiving, by a voice module, at least one voice input;

determining, by at least one processor, at least one action to be performed on a forging assembly based on the received voice input, the forging assembly comprising:

a frame assembly for supporting a die adapted to hold the work piece; and

an actuating unit adapted to apply pressure on the work piece positioned on the die; and

operating the actuating unit to apply pressure on the work piece to perform the forging operation, if the determined action is indicative of performing the forging operation.

9. The method as claimed in claim 8, wherein a sensing module is in communication with the at least one processor, wherein the sensing module is configured to detect at least one of a position and an orientation of the work piece.

10. The method as claimed in claim 8, wherein the at least one processor is configured to:

receive, from the sensing module, information associated with at least one of the position and the orientation of the work piece; and

operate, based on the information and the determined action, the electric motor to move the actuating member for performing the forging operation on the work piece.

Dated this 16th day of March, 2020

Manisha Singh
Agent for the Applicant [IN/PA-740]
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ABSTRACT OF THE INENTION

A SYSTEM AND A METHOD FOR PERFORMING FORGING OPERATION

A voice-assisted forging system to perform forging operation is disclosed. The voice-assisted forging system includes a forging assembly having a frame assembly for supporting a die adapted to hold a work piece. The forging assembly includes an actuating unit adapted to apply pressure on the work piece positioned on the die. Further, the voice-assisted forging system includes a voice module configured to receive at least one voice input. The voice-assisted forging system includes at least one processor in communication with the voice module and the actuating unit. The at least one processor is configured to determine at least one action to be performed on the forging assembly based on the at least one voice input received by the voice module. The at least one processor is configured to operate the actuating unit to apply pressure on the work piece to perform the forging operation, if the determined action is indicative of performing the forging operation.

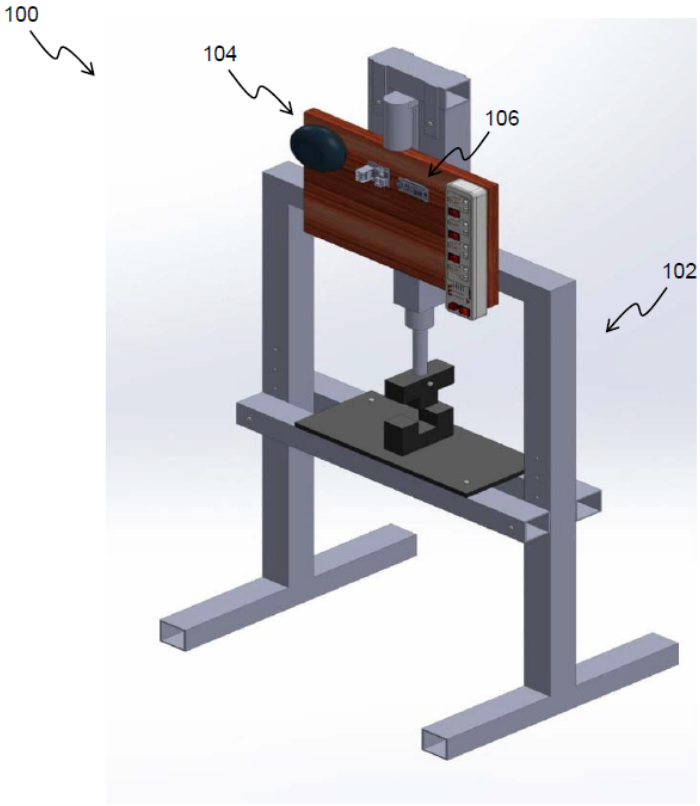

FIGURE 1

1. PASI, Bhaveshkumar N.
2. MAHAJAN, Subhash K.
3. RANE, Santosh B.

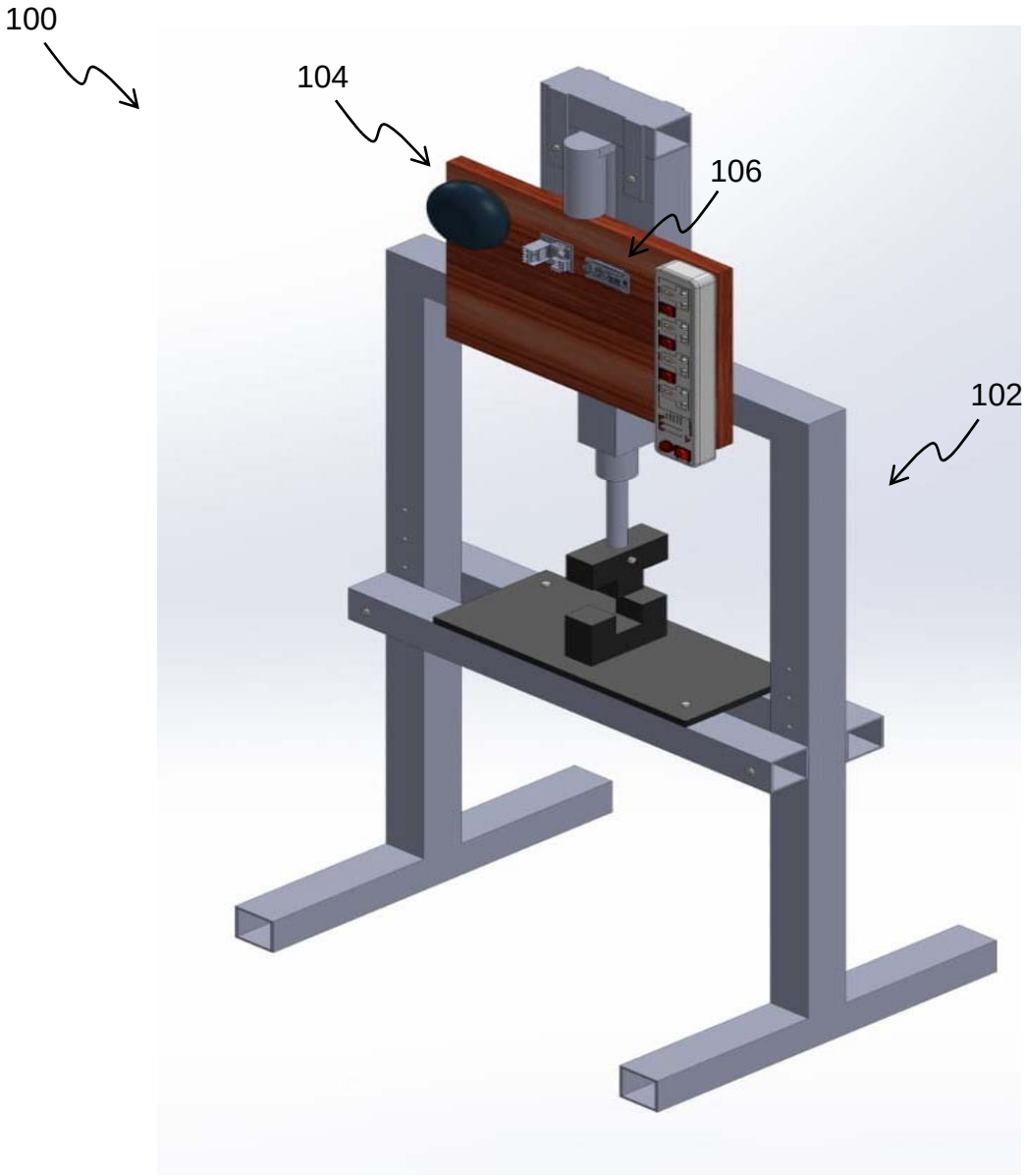

FIGURE 1

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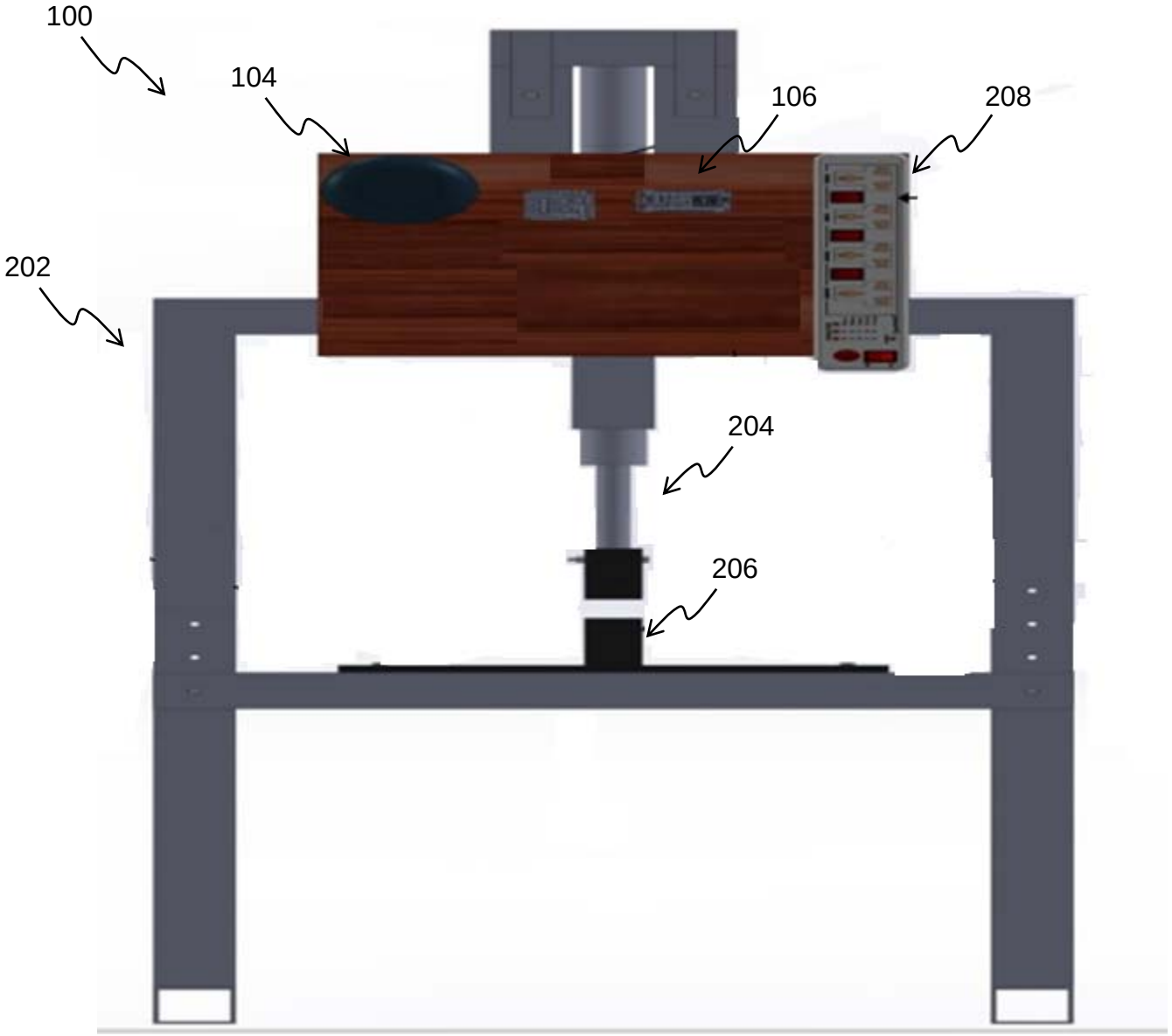

FIGURE 2

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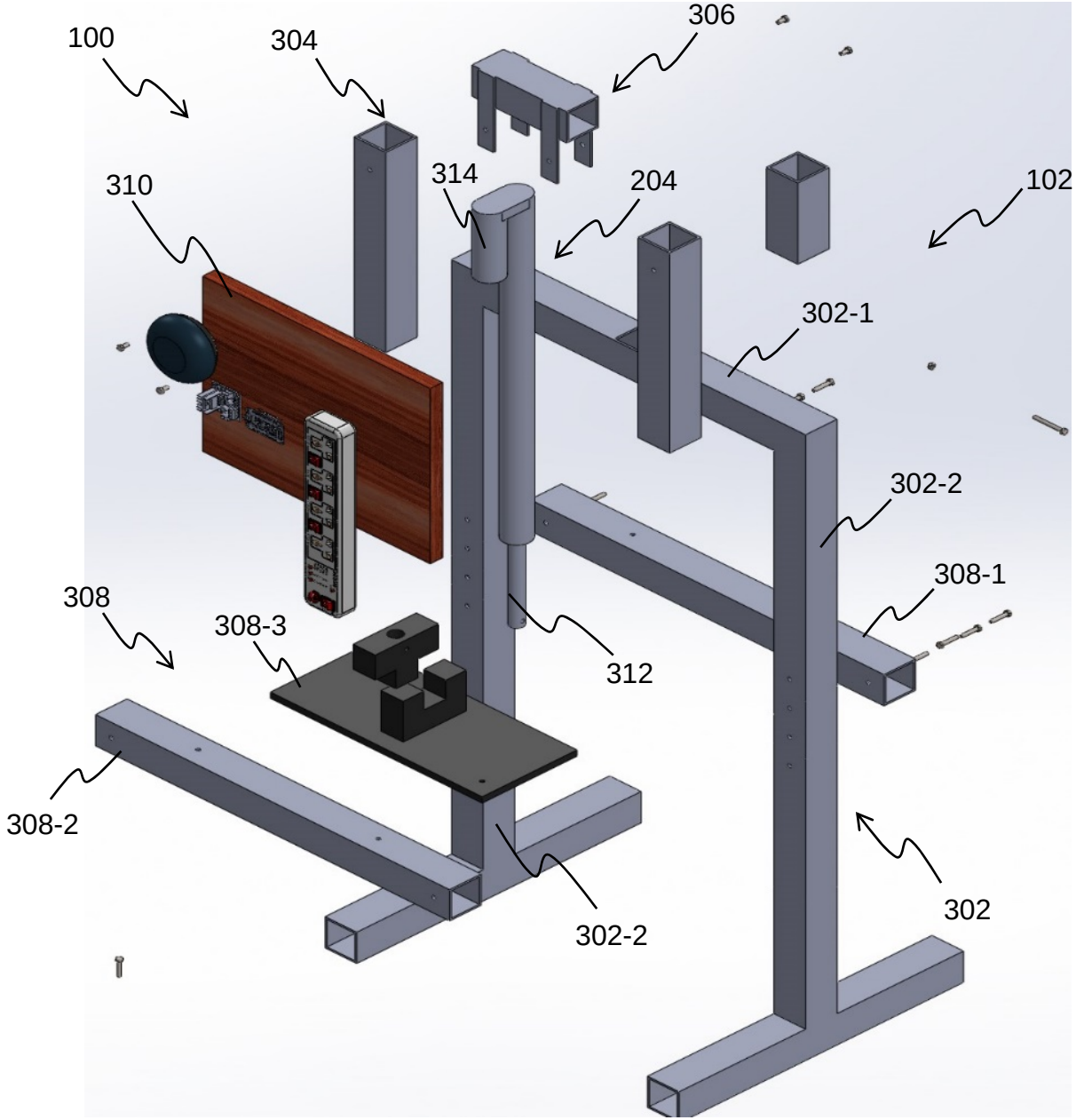

FIGURE 3

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1. PASI, Bhaveshkumar N.
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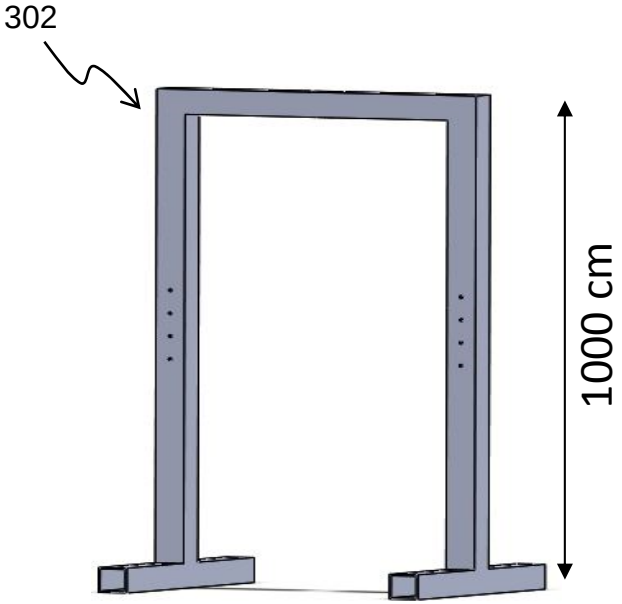

FIGURE 4a

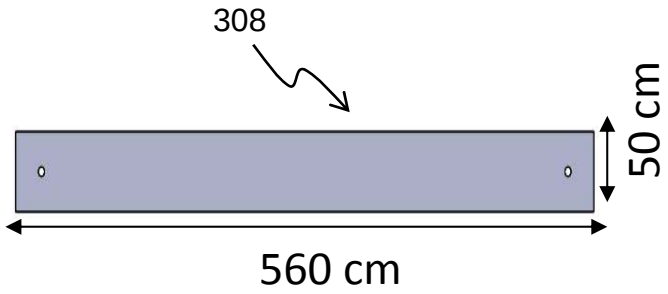

FIGURE 4b

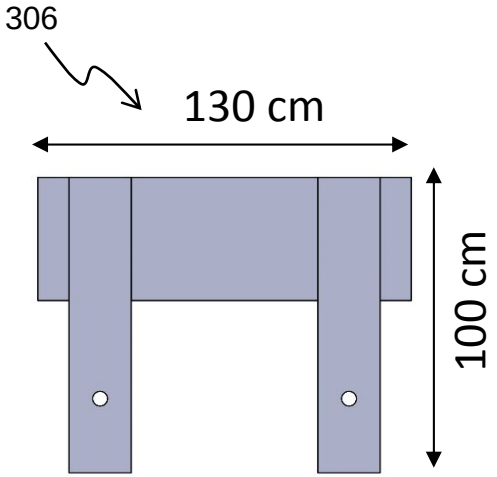

FIGURE 4c

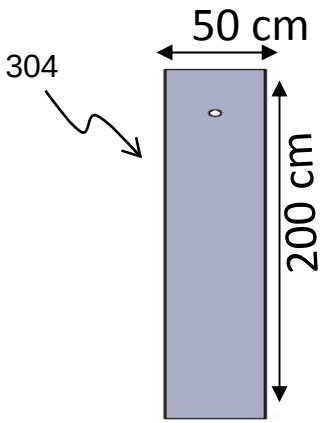

FIGURE 4d

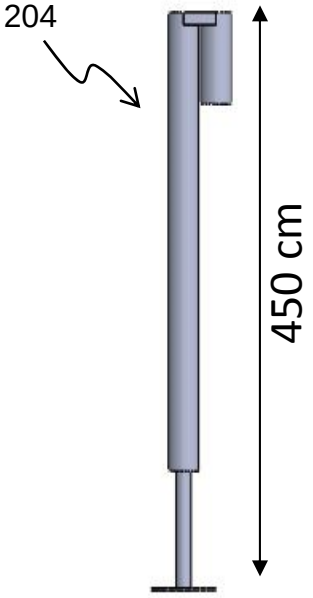

FIGURE 4e

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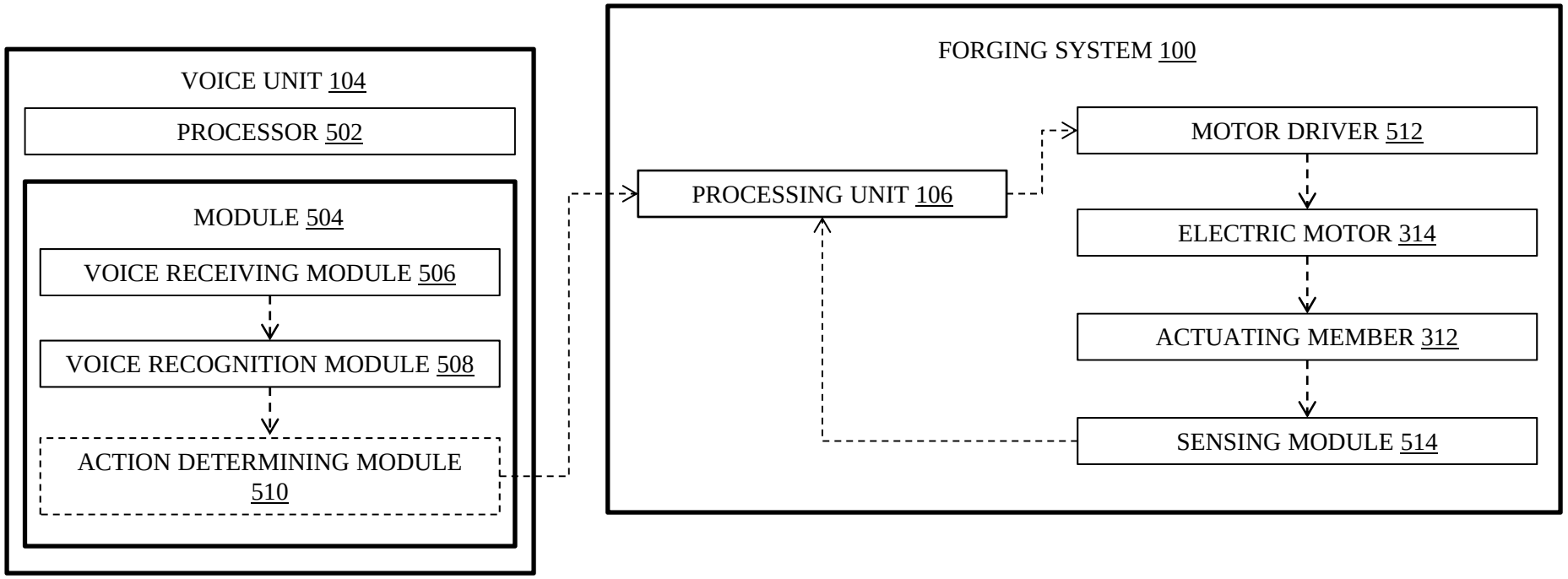

FIGURE 5

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2. MAHAJAN, Subhash K.
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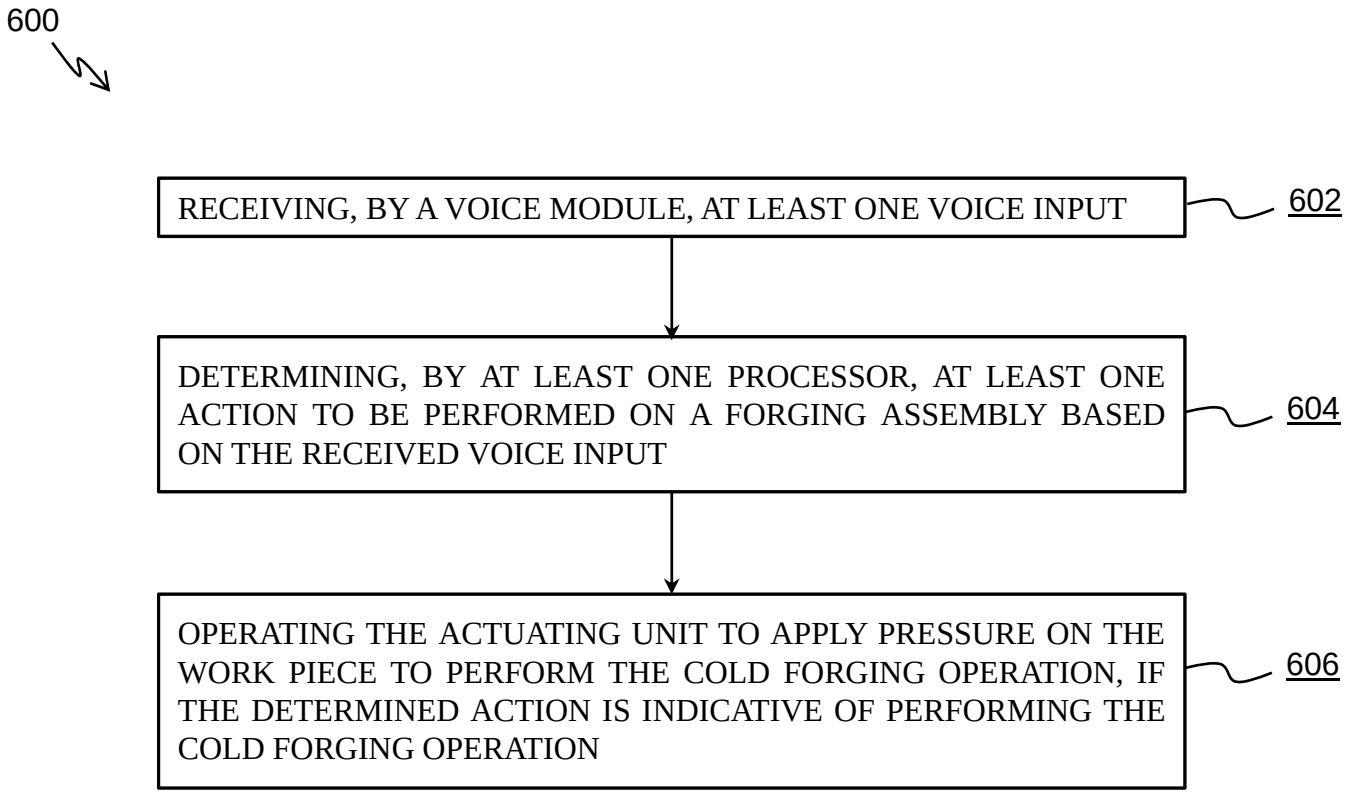

FIGURE 6

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Via e Filing

March 16, 2020

The Controller of Patents
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Fees Calculation Sheet

					Fee (In Rupees)
Total no. of pages [Description, claims, abstract, and drawings]	:	24			
Additional pages in excess of 30	:	0 x	160		0
Total No. of Claims	:	10			
Additional Claims in Excess of 10	:	0 x	320		0
Additional Priority	:	0 x		1600	0
Basic Application Fee	:			1600	1600
Application Filing Fees	:				**1600**
	:				
Total Fees Payable	:				**1600**

Re:

Title	:	A System And A Method For Performing Forging Operation
Applicant	:	1. PASI, Bhaveshkumar N. 2. MAHAJAN, Subhash K. 3. RANE, Santosh B.

FORM 3
THE PATENTS ACT, 1970
(39 of 1970)
&
THE PATENTS [AMENDMENT] RULES, 2006
Statement and Undertaking under Section 8
[See Section 8; rule 12]

We, PASI, Bhaveshkumar N.; MAHAJAN, Subhash K.; and RANE, Santosh B., hereby declare:

(i) That we have not made any application for the same/substantially the same invention outside India.

(ii) That the rights in the application has been assigned to:

PASI, Bhaveshkumar N., of 18 Bhartiya Vidya Bhavan's Sardar Patel College of Engineering, Bhavan's Campus, Munshi Nagar, Andheri (west), Mumbai-400058, Maharashtra, India ; **MAHAJAN, Subhash K.** of Directorate of Technical Education, 3, Mahapalika Marg, Dhobi Talao, Chhatrapati Shivaji Terminus Area, Fort, Mumbai-400001, Maharashtra, India and **RANE, Santosh B.**, of Bhartiya Vidya Bhavan's Sardar Patel College of Engineering, Bhavan's Campus, Munshi Nagar, Andheri (west), Mumbai-400058, Maharashtra, India

(iii) That we undertake that upto the date of grant of the patent by the Controller, we would keep him informed in writing the details regarding corresponding applications for patents filed outside India within six months from the date of filing of such application.

Dated this 16th day of March, 2020

Manisha Singh
Agent for the Applicant [IN/PA-740]
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To
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At Mumbai

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सं.संख्या/Ref.No /आवेदन संख्या/Application No/ 202021011320 दिनांक/Date of Dispatch/Email: 23/12/2021

सेवा मे,/To
MS.OMANA RAMAKRISHNAN,
LEXORBIS 709/710, Tolstoy House 15-17, Tolstoy Marg, New Delhi – 110 001 Telephone No. 91 11 23716565. Mobile No. 9811161518. Fax No. 91 11 23716556. E-MAIL ID-mail@lexorbis.com
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विषय: एकस्व अधिनियम, 1970 की धारा 12 व 13 तथा एकस्व नियम, 2003 के अधीन परीक्षण रिपोर्ट
Subject: Examination report under sections 12 & 13 of the Patents Act, 1970 and the Patents Rules, 2003.

1. उपर्युक्त आवेदन के संदर्भ मे परीक्षण रिपोर्ट (अर्थात, एकस्व नियम, 2003 (यथा संशोधित) के नियम 24-ख(3) में विनिर्दिष्ट आपत्तियों का प्रथम कथन) इसके साथ संलग्न है। यह रिपोर्ट परीक्षण हेतु अनुरोध दिनांक 19/03/2020 के उत्तर मे जारी की गयी है। परीक्षण रिपोर्ट का उत्तर दाखिल करने की अंतिम तिथि (अर्थात, इस रिपोर्ट में लगाई गयी सभी आवश्यकताओं के अनुपालन की अवधि) आवेदक को आपत्तियों का प्रथम कथन जारी होने की तिथि से छः माह है।
   Please find enclosed herewith an Examination Report (i.e. a first statement of objections as specified in Rule 24-B(3) of The Patents Rules, 2003 (as amended)) in respect of above-mentioned application. This report is issued with reference to a request for examination dated 19/03/2020.The last date for filing a response to the Examination Report (i.e. a period to comply with all the requirements raised in this examination report) is six months from the date on which the first statement of objections is issued to the Applicant.

2. यदि रिपोर्ट के अंतर्गत लगाई गयी आवश्यकताओं का अनुपालन एकस्व नियम, 2003 (यथा संशोधित) के नियम 24 ख(5) में विनिर्दिष्ट अवधि के भीतर अंदर अनुपालन नहीं किया गया तो एकस्व अधिनियम 1970 की धारा 21(1) के अधीन वर्तमान आवेदन को परित्यक्त माना जाएगा।
   The instant application shall be deemed to have been abandoned under Section 21(1) of The Patents Act, 1970, unless all the requirements raised in this report are complied with in the period as specified in Rule 24-B (5) of The Patents Rules, 2003 (as amended).

3. आपका ध्यान एकस्व नियम, 2003 के नियम 24 ख(6) के प्रावधानों की ओर भी आमंत्रित किया जाता है।
   Your attention is also invited to the provisions of Rule 24-B (6) of the Patents Rules 2003.

4. आपको सलाह दी जाती है कि शीघ्र निपटान हेतु अपना उत्तर शीघ्र प्रस्तुत करें।
   You are advised to file the reply at the earliest for early disposal.

Prakash Rudani
नियंत्रक पेटेंट/ Controller of Patents

संलग्न/Enclosed: अपरोक्त अनुसार/As above

टिप्पणी: यह इलेक्ट्रोनिक रूप से उत्पन्न रिपोर्ट है।
NOTE: This is an electronically generated report.

सभी पत्राचार नियंत्रक एकस्व को उपरोल्लिखित पते पर भेजा जाये।
All communications should be sent to the Controller of Patents at the above mentioned address.

THE PATENT OFFICE

परीक्षण रिपोर्ट /Examination Report

आवेदन संख्या /Application Number	202021011320
दाखिल करने की तिथि /Date of Filing	16/03/2020
पूर्विक्ता दिनांक /Date of Priority	--
पीसीटी अंतर्राष्ट्रीय आवेदन की संख्या व दिनांक / PCT International Application No. & Date	--
आवेदक /Applicant	PASI, Bhaveshkumar N.
परीक्षण हेतु अनुरोध की संख्या व दिनांक /Request for Examination No. & Date	R20202008975 19/03/2020
प्रकाशन की तिथि /Date of Publication	17/09/2021

इस परीक्षण रिपोर्ट के चार भाग हैं, अर्थात रिपोर्ट का सारांश, विस्तृत तकनीकी रिपोर्ट, औपचारिक आवश्यकताएँ तथा रिकॉर्ड मे दस्तावेज़ /
This examination report consists of four parts, namely summary of the report, detailed technical report, formal requirements and documents on record.

भाग -1: रिपोर्ट का सारांश
PART-I: SUMMARY OF THE REPORT

क्र. सं. /Sl. No.	अधिनियम के तहत आवश्यकताओं पर विस्तृत टिप्पणियां /Requirements under the Act		दावों की संख्या /Claim Numbers	टिप्पणी /Remarks
1.	धारा 2(1)(ग) के तहत आविष्कार /Invention u/s 2(1)(j)	नवीनता /Novelty	दावे /Claims: 1-10	हाँ /Yes
			दावे /Claims:	नहीं /No
		आविष्कारी कदम / Inventive step	दावे /Claims:	हाँ /Yes
			दावे /Claims: 1-10	नहीं /No
		औद्योगिक उपयोगिता /Industrial Applicability	दावे /Claims: 1-10	हाँ /Yes
			दावे /Claims:	नहीं /No
2.	धारा 3 के अधीन पेटेंट-अयोग्यता (यदि हाँ, खंड 3(क-त) /Non-patentability u/s 3 (if yes, specify section3(a-p))		दावे /Claims:	हाँ /Yes
			दावे /Claims: 1-10	नहीं /No
3.	धारा 4 के अधीन पेटेंट-अयोग्यता /Non-patentability u/s 4		दावे /Claims:	हाँ /Yes
			दावे /Claims: 1-10	नहीं /No
4.	धारा 10 (5) के अधीन आविष्कार की एकलता /Unity of invention u/s 10 (5)		दावे /Claims: 1-10	हाँ /Yes
			दावे /Claims:	नहीं /No
5.	[धारा 10(5) व 10(4) (ग)] के अधीन दावे /Claims [u/s 10(5) & 10(4) (c)]	परिभाषिकता /Definitive	दावे /Claims:	हाँ /Yes
			दावे /Claims: 1-10	नहीं /No

भाग –II विस्तृत तकनीकी रिपोर्ट
PART-II: DETAILED TECHNICAL REPORT

क. उद्धरित दस्तावेजों की सूची /A.List of documents cited:

(क) पेटेंट साहित्य / (a). Patent Literature :

क्र. सं. / Sl.no	दस्तावेज़ों का विवरण /Details of documents	प्रकाशन तिथि(दिन/माह/वर्ष) / Publication date	उद्धरित दस्तावेज़ का प्रासंगिक विवरण (पृष्ठ व अनुच्छेद संख्या) / Relevant description (page and paragraph no.) of cited	उद्धरित दस्तावेज़ के प्रासंगिक दावे / Relevant claims of cited document	अभिकथित आविष्कार के दावे /Claims of alleged invention

			document		
1	D1: JP 4015139	12/01/2006	WHOLE DOCUMENT	1	1-10
2	D2: CN 101835925	15/09/2010	WHOLE DOCUMENT	1	1-10
3	D3: CN 105026070	04/11/2015	WHOLE DOCUMENT	1	1-10

(ख) गैर-पेटेंट साहित्य /(b).Non-patent literature

कोई दस्तावेज़ उद्धृत नहीं है /No Document Cited

ख. अधिनियम के तहत आवश्यकताओं पर विस्तृत टिप्पणियां /B. Detailed observations on the requirements under the Act:

(1).आविष्कारी कदम / INVENTIVE STEP:

(I) ऊपर उद्धरित दस्तावेज़(जों) के संदर्भ D1: JP 4015139, D2: CN 101835925, D3: CN 105026070 मे स्पष्ट अध्यापन(नों) को ध्यान मे रखते हुए, निम्नलिखित कारणों से दावा(वों) (1-10) मे आविष्कारी कदम की कमी है
Claim(s) (1-10) lack(s) inventive step, being obvious in view of teaching (s) of cited document(s) above under reference D1: JP 4015139, D2: CN 101835925, D3: CN 105026070 for the following reasons:

D1: JP 4015139 discloses a forging machine that performs a die cushion operation by reciprocating one mold fixing member with a predetermined stroke and driving the other mold fixing member by a servo motor, the mold fixing member or the mold fixing member A detector that detects the position of the servo motor that drives the motor, a detector that detects the speed of the servo motor, a position control processing unit that creates a speed command from a position deviation that is the difference between the position command and position feedback, and a speed command In a servo motor control device for a forging machine that includes a speed control processing unit that creates a torque command from a speed deviation that is a difference between the speed feedback and drives the servo motor based on the torque command to process a workpiece.

D2: CN 101835925 discloses a surface coated with alumina formed by anodizing and gives a stamped surface having neither macro irregularities nor color unevenness; a process for producing the stamper; and a process for producing with the stamper a molding having a stamped surface having neither macro irregularities nor color unevenness. The stamper is characterized by having been produced from an aluminum base die which is made of aluminum having a purity of 99.5% or higher and has a surface having an average crystal-grain diameter of 1 mm or smaller and an arithmetic average roughness (Ra) of 0.05 [mu]m or smaller, by forming alumina having a finely roughened structure on the surface of the die by anodizing. By using this stamper, molding can be produced which has a stamped surface having neither macro irregularities nor color unevenness and is suitable for use as an antireflective article, etc.

D3: CN 105026070 discloses a passage forging workpiece with initial microstructure refine be included in press forging metal material workpiece on the first forging direction it is one or many until the metal material reductions plastic limit with described first forging direction on assign be enough initial microstructure refine overall strain; Rotate the workpiece; The open type pressing mold forging workpiece is one or many until the reduction plastic limit assigns the overall strain that initial microstructure is refined to be forged described second on the direction on the second forging direction, And rotation is repeated on the 3rd and optionally one or more extra directions and open type pressing mold is forged until the total amount of the strain of imparting initial microstructure refinement in the whole volume in the workpiece.

Without prejudice to the above, the alleged invention lacks an inventive step in view of D1-D3.

(2).प्रकटन की दक्षता /SUFFICIENCY OF DISCLOSURE:

(3).परिभाषिकता /DEFINITIVENESS:

(I) दावा(वे)1-10 निम्नलिखित कारणों से आविष्कार को पर्याप्त रूप से परीभाषित नहीं करता(ते) हैं
Claim(s) 1-10 do not sufficiently define the invention for the reasons as follows:

1. Claims do not sufficiently define the invention. The distinguishing inventive feature over the prior art is not clear.

2. Scope of the claims is not clear.

3. The question of the unity of the invention will be considered after the specification has been amended to avoid the objections pointed out above.

4. The question of the novelty will be considered after the objections above have been complied with.

भाग – III: औपचारिक आवश्यकताएँ /PART-III: FORMAL REQUIREMENTS

आपत्तियां /Objections	टिप्पणी /Remarks
Statement & Under Taking (Form 3 Details)	Details regarding application for Patents which may be filed outside India from time to time for the same or substantially the same invention should be furnished within six months from the date of filing of the said application under clause (b) of subsection (1) of section 8 and rule 12(1) of Indian Patent Act.

भाग-IV: रिकॉर्ड मे दस्तावेज़ /PART-IV: DOCUMENTS ON RECORD

निम्नलिखित दस्तावेज़ों के आधार पर यह परीक्षण रिपोर्ट तैयार की गयी है
The examination report has been prepared based on the following documents:

कार्यसूची तिथि / Docket Date	कार्यसूची संख्या /Docket Number	पूर्विष्टि संख्या विवरण /Entry Number Description
16 Mar 2020	17797	1-New Application For Patent With Provisional /Complete Specification
19 Mar 2020	19194	28(i)-Request For Examination After 18 months Publication - Form 18
19 Mar 2020	19194	45-Form Of Authorisation Of Patent Agent - Form 26

नियंत्रक का नाम /Name of the Controller: Prakash Rudani

नियंत्रक स्थान /Controller Location: Mumbai

टिप्पणी: परीक्षण रिपोर्ट का उत्तर दाखिल करने की अंतिम तिथि / Note: Last date for filing response to the Examination Report: 23/06/2022

WE CLAIM:

1. A voice-assisted forging system to perform forging operation on a work piece, the voice-assisted forging system comprising:

a forging assembly comprising:

a frame assembly for supporting a die adapted to hold the work piece;

an actuating unit adapted to apply pressure on the work piece positioned on the die;

characterized in that

a voice module configured to receive at least one voice input; and

at least one processor in communication with the voice module and the actuating unit, wherein the at least one processor is configured to:

determine at least one action to be performed on the forging assembly based on the at least one voice input received by the voice module; and

operate the actuating unit to apply pressure on the work piece to perform the forging operation, if the determined action is indicative of performing the forging operation.

2. The voice-assisted forging system as claimed in claim 1, wherein the forging assembly includes the frame assembly having a main body, an upper body, a support head, and a support bed, wherein the support bed is adapted to support the die for holding the work piece.

3. The voice-assisted forging system as claimed in claim 1, wherein the actuating unit includes an actuating member and an electric motor, the actuating unit is adapted to reciprocate in a vertical direction with respect to the support bed to apply the pressure on the work piece.

4. The voice-assisted forging system as claimed in claim 3, wherein the electric motor is in communication with the at least one processor and the actuating member, the electric motor is configured to receive input from the at least one processor based on the determined action and to operate the actuating member based on the received input.

5. The voice-assisted forging system as claimed in claim 1 further comprising a sensing module in communication with the at least one processor, wherein the sensing module is configured to detect at least one of a position and an orientation of the work piece on the support bed.

6. The voice assisted forging system as claimed in claim 5, wherein the at least one processor is configured to:

receive, from the sensing module, information associated with at least one of the position and the orientation of the work piece on the support bed; and

operate, based on the information and the determined action, the electric motor to move the actuating member for performing the forging operation on the work piece.

7. The voice assisted forging system as claimed in claim 1, wherein the at least one processor is in communication with an electronic device, wherein the electronic device includes the voice module configured to receive the at least one voice input.

8. A method for performing forging operation on a work piece using a voice-assisted forging system, the method comprising:

receiving, by a voice module, at least one voice input;

determining, by at least one processor, at least one action to be performed on a forging assembly based on the received voice input, the forging assembly comprising:

a frame assembly for supporting a die adapted to hold the work piece; and

an actuating unit adapted to apply pressure on the work piece positioned on the die; and

operating the actuating unit to apply pressure on the work piece to perform the forging operation, if the determined action is indicative of performing the forging operation.

9. The method as claimed in claim 8, wherein a sensing module is in communication with the at least one processor, wherein the sensing module is configured to detect at least one of a position and an orientation of the work piece.

10. The method as claimed in claim 8, wherein the at least one processor is configured to:

receive, from the sensing module, information associated with at least one of the position and the orientation of the work piece; and

operate, based on the information and the determined action, the electric motor to move the actuating member for performing the forging operation on the work piece.

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Via Electronic Filing

Controller of Patents	**:**	**Prakash Rudani**
Letter Ref.	**:**	**Application No/ 202021011320**

February 24, 2022

The Controller of Patents
Patent Office Branch
Boudhik Sampada Bhawan, Antop Hill,
S. M. Road, Mumbai - 400 037

Due date to respond to the Examination Report: June 23, 2022

Re:	Indian Patent Application No.	:	**202021011320**
	Date of Filing	:	March 16, 2020
	Title	:	A SYSTEM AND A METHOD FOR PERFORMING FORGING OPERATION
	Applicant - I	:	PASI, Bhaveshkumar N.
	Applicant – II	:	MAHAJAN, Subhash K.
	Applicant – III	:	RANE, Santosh B.
	Date of First Examination Report	**:**	**December 23, 2021**

Respected Sir,

We write in response to your above referenced letter dated **December 23, 2021** with regard to the above identified Indian Patent Application. Our response to the objections raised is as follows:

PART II-DETAILED TECHNICAL REPORT

1. **Objection 1:**

INVENTIVE STEP:

Claim(s) (1-10) lack(s) inventive step, being obvious in view of teaching (s) of cited document(s) above under reference D1: JP 4015139, D2: CN 101835925, D3: CN 105026070 for the following reasons:

D1: JP 4015139 discloses a forging machine that performs a die cushion operation by reciprocating one mold fixing member with a predetermined stroke and driving the other mold fixing member by a servo motor, the mold fixing member or the mold fixing member A detector that detects the position of the servo motor that drives the motor, a detector that detects the speed of the servo motor, a position control processing unit that creates a speed command from a position deviation that is the difference between the position command and position feedback, and a speed command In a servo motor control device for a forging machine that includes a speed control processing unit that creates a torque command from a speed deviation that is a difference between the speed feedback and drives the servo motor based on the torque command to process a workpiece.

D2: CN 101835925 discloses a surface coated with alumina formed by anodizing and gives a stamped surface having neither macro irregularities nor color unevenness; a process for producing the stamper; and a process for producing with the stamper a molding having a stamped surface having neither macro irregularities nor color unevenness. The stamper is characterized by having been produced from an aluminum base die which is made of aluminum having a purity of 99.5% or higher and has a surface having an average crystal-grain diameter of 1 mm or smaller and an arithmetic average roughness (Ra) of 0.05 [mu]m or smaller, by forming alumina having a finely roughened structure on the surface of the die by anodizing. By using this stamper, molding can be produced which has a stamped surface having neither macro irregularities nor color unevenness and is suitable for use as an antireflective article, etc.

D3: CN 105026070 discloses a passage forging workpiece with initial microstructure refine be included in press forging metal material workpiece on the first forging direction it is one or many until the metal material reductions plastic limit with described first forging direction on assign be enough initial microstructure refine overall strain ; Rotate the workpiece; The open type pressing mold forging workpiece is one or many until the reduction plastic limit assigns the overall strain that initial microstructure is refined to be forged described second on the direction on the second forging direction, And rotation is repeated on the 3rd and optionally one or more extra directions and open type pressing mold is forged until the total amount of the strain of imparting initial microstructure refinement in the whole volume in the workpiece.

Without prejudice to the above, the alleged invention lacks an inventive step in view of D1-D3.

Applicant's Submission:

The Applicant is thankful to the Controller for acknowledging the novelty of the present invention. However, the Applicant disagrees that the present invention lacks inventive step in view of documents D1: JP 4015139, D2: CN 101835925 and D3: CN 105026070 and submits the following remarks.

Present Invention:

Initially the Applicant submits herewith the independent claim 1 of the present invention:

"*A voice-assisted forging system to perform forging operation on a work piece, the voice-assisted forging system comprising:*

a forging assembly comprising:

a frame assembly for supporting a die adapted to hold the work piece;

an actuating unit adapted to apply pressure on the work piece positioned on the die;

characterized in that

a voice module configured to receive at least one voice input; and

at least one processor in communication with the voice module and the actuating unit, wherein the at least one processor is configured to:

determine at least one action to be performed on the forging assembly based on the at least one voice input received by the voice module; and

operate the actuating unit to apply pressure on the work piece to perform the forging operation, if the determined action is indicative of performing the forging operation."

Technical Problem:

The smithy or forge has evolved over centuries to become a facility with engineered processes, production equipment, tooling, and products to meet the demand of modern Industry.

In modern times, industrial forging is done either with presses or with hammers powered by compressed air, electricity, hydraulics or steam. However, such aforesaid forging techniques involve manual intervention to perform a forging operation on the metal object. Owing to manual intervention, the overall accuracy of performing the forging operation is substantially reduced. This results in numerous defects in the forged products which further lead to a higher rejection rate of such products. Further, the aforesaid forging techniques require excess energy to perform the forging operation owing to the higher rejection rate

of forged products. Also, trained manpower is required to perform the forging operation using the aforesaid forging techniques.

Therefore, there the technical problem is a need for an improved solution for performing the forging operation.

Technical Solution:

The technical solution to the above mentioned problem is provided by the voice-assisted forging system to perform forging operation wherein the voice-assisted forging system includes a forging assembly having a frame assembly for supporting a die adapted to hold a work piece. The forging assembly includes an actuating unit adapted to apply pressure on the work piece positioned on the die the voice-assisted forging system includes a voice module configured to receive at least one voice input. The voice-assisted forging system includes at least one processor in communication with the voice module and the actuating unit. The at least one processor is configured to determine at least one action to be performed on the forging assembly based on the at least one voice input received by the voice module. The at least one processor is configured to operate the actuating unit to apply pressure on the work piece to perform the forging operation if the determined action is indicative of performing the forging operation.

The invention further teaches a method for performing forging operation on a work piece using
a voice-assisted forging system. The method includes receiving, by a voice module, at least one voice input. Further, the method includes determining, by at least one processor, at least one action to be performed on a forging assembly based on the received voice input. The forging assembly includes a frame assembly for supporting a die adapted to hold the work piece. Further, the forging assembly includes an actuating unit adapted to apply pressure on the work piece positioned on the die. The method includes operating the actuating unit to apply pressure on the work piece to perform the forging operation if the determined action is indicative of performing the forging operation.

Technical Advancement:

The technical advancements provided by the present invention is that the forging system 100 can be operated remotely through at least one electronic device in communication with the processing unit 106 with the help of the voice-assisted forging system. A further advantage of the present invention is that with the manufacturing of high-quality products, the overall rejection rate of products is substantially reduced and production rate is substantially increased. Further, the overall weight of the forging system 100 is

substantially less than conventional forging machines. Also, the overall cost involved in forging the work piece is substantially reduced as the forging system 100 eliminates the requirement of the trained workforce for performing the forging system 100.

Prior Art Document D1:

It is submitted that the document D1 discloses a servo motor for driving a die with position and speed detectors. Further, a pressure sensor for detecting the pressure applied to a workpiece is provided. In the servo motor control unit, the smaller one of the speed command obtained by feedback control of the position and the speed command obtained by the pressure feedback control is selected as an output of a comparator. Based on the speed command output from the comparator, feedback control of the speed is performed and the servo motor is driven. In the state where the die does not press against the workpiece, a pressure error is large, the speed command by pressure control becomes large, and the speed command by position control becomes small. Therefore, position control is performed. When the workpiece is pressed, the position error increases, and the pressure error decreases, a speed command by pressure control is employed and pressure control is performed.

The document D1 fails to disclose at least the following differentiating features of the present invention:

> "***a voice module configured to receive at least one voice input; and***
> ***at least one processor in communication with the voice module and the actuating unit, wherein the at least one processor is configured to:***
> ***determine at least one action to be performed on the forging assembly based on the at least one voice input received by the voice module; and***
> ***operate the actuating unit to apply pressure on the work piece to perform the forging operation, if the determined action is indicative of performing the forging operation.***"

A person skilled in the art would not have arrived at the claimed invention because the person skilled in the art would not have received any suggestion or motivation from the cited document D1 to modify any of the techniques disclosed therein to work as in the claimed invention. It is thus evident in the absence of the differentiating features; the claimed invention is inventive over disclosure D1.

Prior Art Document D2:

It is submitted that the prior art document D2 teaches about a stamper which has a surface coated with alumina formed by anodizing and gives a stamped surface having neither macro irregularities nor color unevenness; a process for producing the stamper; and a process for producing with the stamper a molding having a stamped surface having neither macro irregularities nor color unevenness. The stamper is characterized by having been produced from an aluminum base die which is made of aluminum having a purity of 99.5% or higher and has a surface having an average crystal-grain diameter of 1 mm or smaller and an arithmetic average roughness (Ra) of 0.05 [mu]m or smaller, by forming alumina having a finely roughened structure on the surface of the die by anodizing. By using this stamper, a molding can be produced which has a stamped surface having neither macro irregularities nor color unevenness and is suitable for use as an antireflective article, etc.

The document D2 fails to disclose at least the following differentiating features of the present invention:

> "***a voice module configured to receive at least one voice input; and***
> ***at least one processor in communication with the voice module and the actuating unit, wherein the at least one processor is configured to:***
> ***determine at least one action to be performed on the forging assembly based on the at least one voice input received by the voice module; and***
> ***operate the actuating unit to apply pressure on the work piece to perform the forging operation, if the determined action is indicative of performing the forging operation.***"

A person skilled in the art would not have arrived at the claimed invention because the person skilled in the art would not have received any suggestion or motivation from the cited document D2 to modify any of the techniques disclosed therein to work as in the claimed invention. It is thus evident in the absence of the differentiating features; the claimed invention is inventive over disclosure D2.

Prior Art Document D3:

It is submitted that the prior art document D3 discloses a divide passage forging workpiece with initial microstructure refine be included in press forging metal material workpiece on the first forging direction it is one or many until the metal material reductions plastic limit with described first forging direction on assign be enough initial microstructure refine overall strain; rotate the workpiece. The open type pressing mold forging workpiece is one

or many until the reduction plastic limit assigns the overall strain that initial microstructure is refined to be forged described second on direction on the second forging direction. And rotation is repeated on the 3rd and optionally one or more extra directions and open type pressing mold is forged until the total amount of the strain of imparting initial microstructure refinement in the whole volume in the workpiece.

The document D3 fails to disclose at least the following differentiating features of the present invention:

> "***a voice module configured to receive at least one voice input; and***
> ***at least one processor in communication with the voice module and the actuating unit, wherein the at least one processor is configured to:***
> ***determine at least one action to be performed on the forging assembly based on the at least one voice input received by the voice module; and***
> ***operate the actuating unit to apply pressure on the work piece to perform the forging operation, if the determined action is indicative of performing the forging operation.***"

A person skilled in the art would not have arrived at the claimed invention because the person skilled in the art would not have received any suggestion or motivation from the cited document D3 to modify any of the techniques disclosed therein to work as in the claimed invention. It is thus evident in the absence of the differentiating features; the claimed invention is inventive over disclosure D3.

Accordingly, the Applicant submits that the claimed invention provides a technical advancement as compared to the cited documents, D1, D2 and D3 at least due to the presence of the aforesaid differentiating features in the independent claim 1.

None of the above-cited paragraphs of D1-D3 disclose the differentiating features of the claimed invention as recited in the independent claim 1. More specifically, there is no teaching in the prior art as a whole that would (not simply could, but would) have prompted the skilled person, faced with the technical problem, to modify or adapt the closest prior art while taking account the teaching, thereby arriving at something falling within the terms of the present claims, and thus achieving what the invention achieves as technical advancement.

Therefore, the invention as claimed in independent claim 1 involves an inventive step over cited documents D1–D3 as required under Section 2(1)(ja) of the Patents Act.

In view of the above, the Applicant humbly requests the Controller to reconsider and allow the claims of the present invention.

2. **Objection 2:**

DEFINITIVENESS:

Claim(s) 1-10 do not sufficiently define the invention for the reasons as follows:

1. Claims do not sufficiently define the invention. The distinguishing inventive feature over the prior art is not clear.

2. Scope of the claims is not clear.

3. The question of the unity of the invention will be considered after the specification has been amended to avoid the objections pointed out above.

4. The question of the novelty will be considered after the objections above have been complied with.

Applicant's Submission:

1. The Applicant has amended the claims to clearly identify the distinguishing feature in the independent claim 1 based on which the Controller is requested to reconsider the claims and waive the objection.

2. The scope of the claims will now be better understood based on the arguments provided with respect to the inventive step and amendments made in the independent claim 1.

3. In the view of the objection, the Applicant respectfully disagrees with the Controller and submits that the objected claims need not be alleged as lacking clarity only on the premise that there is a plurality of independent claims in the applications. Further, the Applicant would like to draw the attention of the Learned Controller to ***Page 104 of the Manual of Patent Practice and Procedure***, where it is stated that multiple independent claims are justified where the single inventive concept covers more than one category e.g. process, product, complementary versions within one category e.g. plug and socket, transmitter and receiver, which work only together. Moreover, there is no restriction in the Patents Act or Patent Rules which leads to a conclusion that merely having a plurality of independent claims in an application leads to a lack of clarity, conciseness, and succinctness of the claims. Further, the Applicant would like

to draw the attention of the Learned Controller to ***Page 45 of the Manual of Patent Practice and Procedure***, where it is stated that there is as such no restriction as to the number of claims including independent claims and there may be more than one independent claim in a single application if the claims fall under a single inventive concept as long as the claims are of the cognate character and are linked so as to form a single inventive concept. As would be appreciated by the Learned Controller, the Applicant needs to have both the independent claims in the application to ensure a comprehensive protection for the claimed invention. Further, the claims also conform to the IPO practise of allowing one claim per category.

Accordingly, the Applicant submits that such claims are allowable under sections 10(5) and 10(4)(c) of The Patents Act 1970, as amended by the Patents (Amendment) Act 2005. The Controller is therefore requested to withdraw this objection.

4. The present invention is novel and inventive which will be better understood based on the amendments in claims and the arguments provided above with respect to inventive step to which the person skilled in the art will understand and relate to.

   The Controller is requested to take the above into consideration and waive off the objection.

PART-III: FORMAL REQUIREMENTS

3. Objection 3:

Statement & Undertaking (Form 3 Details)

Details regarding application for Patents which may be filed outside India from time to time for the same or substantially the same invention should be furnished within six months from the date of filing of the said application under clause (b) of subsection (1) of section 8 and rule 12(1) of Indian Patent Act.

Applicant's Submission:

The Applicant submits that the no corresponding application has been filed outside India. Therefore, the Applicant requests the Controller withdraw the said objection.

In view of the above submissions, we request you to kindly accept this application and proceed to grant a patent. Also, please let us know if we are required to comply with any further requirements. However, before taking any adverse action, we humbly request the Controller of

Patents to give the applicant an opportunity of being heard u/s 14 of the Indian Patents Act, 1970.

We thank you in advance for your cooperation in this regard.

Very Truly Yours,

Manisha Singh
Agent for the Applicant [IN/PA-740]
LEXORBIS

Enclosures:-

1. *Clean copy of amended claims; and*
2. *Marked-up copy of amended claims*

WE CLAIM:

1. A voice-assisted forging system to perform forging operation on a work piece, the voice-assisted forging system comprising:

a forging assembly comprising:

a frame assembly for supporting a die adapted to hold the work piece;

an actuating unit adapted to apply pressure on the work piece positioned on the die;

characterized in that

a voice module configured to receive at least one voice input; and

at least one processor in communication with the voice module and the actuating unit, wherein the at least one processor is configured to:

determine at least one action to be performed on the forging assembly based on the at least one voice input received by the voice module; and

operate the actuating unit to apply pressure on the work piece to perform the forging operation, if the determined action is indicative of performing the forging operation.

2. The voice-assisted forging system as claimed in claim 1, wherein the forging assembly includes the frame assembly having a main body, an upper body, a support head, and a support bed, wherein the support bed is adapted to support the die for holding the work piece.

3. The voice-assisted forging system as claimed in claim 1, wherein the actuating unit includes an actuating member and an electric motor, the actuating unit is adapted to reciprocate in a vertical direction with respect to the support bed to apply the pressure on the work piece.

4. The voice-assisted forging system as claimed in claim 3, wherein the electric motor is in communication with the at least one processor and the actuating member, the electric motor is configured to receive input from the at least one processor based on the determined action and to operate the actuating member based on the received input.

5. The voice-assisted forging system as claimed in claim 1 further comprising a sensing module in communication with the at least one processor, wherein the sensing module is configured to detect at least one of a position and an orientation of the work piece on the support bed.

6. The voice assisted forging system as claimed in claim 5, wherein the at least one processor is configured to:

receive, from the sensing module, information associated with at least one of the position and the orientation of the work piece on the support bed; and

operate, based on the information and the determined action, the electric motor to move the actuating member for performing the forging operation on the work piece.

7. The voice assisted forging system as claimed in claim 1, wherein the at least one processor is in communication with an electronic device, wherein the electronic device includes the voice module configured to receive the at least one voice input.

8. A method for performing forging operation on a work piece using a voice-assisted forging system, the method comprising:

receiving, by a voice module, at least one voice input;

determining, by at least one processor, at least one action to be performed on a forging assembly based on the received voice input, the forging assembly comprising:

a frame assembly for supporting a die adapted to hold the work piece; and

an actuating unit adapted to apply pressure on the work piece positioned on the die; and

operating the actuating unit to apply pressure on the work piece to perform the forging operation, if the determined action is indicative of performing the forging operation.

9. The method as claimed in claim 8, wherein a sensing module is in communication with the at least one processor, wherein the sensing module is configured to detect at least one of a position and an orientation of the work piece.

10. The method as claimed in claim 8, wherein the at least one processor is configured to:

receive, from the sensing module, information associated with at least one of the position and the orientation of the work piece; and

operate, based on the information and the determined action, the electric motor to move the actuating member for performing the forging operation on the work piece.

Dated this the 16th Day of March, 2020

Manisha Singh
Agent for the Applicant [IN/PA-740]
LEXORBIS