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To

The Controller of Patents

The Patent Office

Delhi

September 02nd, 2022

**KIND ATTN: SMT. HARDIT KAUR**

**CONTROLLER OF PATENTS**

Dear Sir,

Re: Patent Application No. **201911028234** Filed on: **14/07/2019**

Applicant: **CHITKARA INNOVATION INCUBATOR FOUNDATION**

Title: **A PORTABLE SNAKE DETECTION AND WARNING DEVICE**

Letter No: **Ref. No/Application No/201911028234** Dated**: 02/03/2022**

This is in reference to the First examination report dated **02/03/2022**against Indian Patent Application No. **201911028234** referred hereafter as present application/invention.

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## AMENDMENT TO CLAIMS

1. In view of the objections related to Paragraphs 1, 2, 3 and 4 and other deficiencies put forth in the examination report, however, without admitting to the propriety of the rejections/objections, the Applicant respectfully submits that the pending claims (on file) have been suitably amended to make them clear, concise, and also submits the revised claims in the prescribed manner which are now in condition of allowance. Revisions in claims are as under:
   i) Claims 2 and 3 have been merged and amended into independent claim 1.
   ii) Claims 4, 5 and 6 have been merged and amended together to form claim 2.
   iii) Claims are renumbered due to the merging and amendment of claims.
   iv) Reference numerals, as far as applicable and whenever necessary have been incorporated in the claims on file.
2. Applicant submits that no new matter has been added to any of the pending claims.
3. It is submitted that all the amendments to the claims are directly and unambiguously derivable from the application as originally filed, and therefore meet the requirements of The Patents Act, 1970.
4. In order to facilitate review of the amendments, a compared version of the amended set of claims 1-3 having the amendments compared to the original version of claims 1-7 are enclosed along with this response. Marked up as well as clean copies of the amended claims are enclosed to this response.
5. All amendments are made without prejudice or disclaimer of subject matter that has been deleted at this stage. The Applicant reserves the right to reintroduce any deleted matter in this application or in a subsequent divisional application.

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## RESPONSE TO OBEJCTIONS

## PARAGRAPH (1) – INVENTIVE STEP

With regards to the Paragraph (1) objection pertaining to Inventive Step on claims 1-7 in view of **D1: CN107853287A & D2: 'Snake X- Advanced snake control',** Applicant respectfully disagrees that the invention (amended claims 1-3), lacks Inventive Step, and is not allowable u/s 2(1)(j) of the Patents Act, 1970. The Applicant respectfully traverses these grounds of objections as teachings of the referred prior-art documents are differently from his invention. ***The Applicant notes that the Learned Examiner has acknowledged the Novelty of the originally filed claims 1-7.*** Presented below are arguments in support of Inventive Step of the present invention.

At the outset, Applicant would like to explain that the present invention relates to **audio signal intuition, more specifically, relates to a portable device to detect snakes with hiss intuition decoding and a warning system.** As recited in Paras 007, 008, 009 and 0010 of the specification on file that,

> *Efforts have been made in the past to overcome problem associated with snake detection and warning. Snake repellent are commercially available, but they not apt due to its bulkiness. Being bulky, it is not practical to be used while walking during night times through agricultural farms in rural areas. Also, it is not accurate and efficient as it fails to work on plywood and filter paper during night-time and shows 50% results on cloth. The existing technique of using a temperature sensor can detect the heat radiations from the snake, however they are not a viable option owing to the fact that they are highly priced. Further, at high-temperature, the thermal sensors are susceptible to inhomogeneity. Moreover, image processing technology cannot be used for the purpose as it is expensive, and its accuracy is affected by the obstructions in the path of the sensors. If sound frequency sensor is used to detect snakes in the device, it becomes extremely bulky, because the mic operates at 80 Hz to 15 KHz with non-linear response throughout the bandwidth. Anything lesser than 80 Hz is difficult to detect and*

*the size of detector is inversely proportional to frequency, making it bulky and impractical. There is therefore a need in the art to provide a portable snake detecting device that overcome the above-mentioned and other limitations of the existing solutions and utilize techniques, which are portable, robust, accurate, efficient, cost effective and simple.*

Thus, from above it may be appreciated in that, the principal problem that the present invention intends to solve is **"How to provide an accurate and efficient snake detection and warning device that detects snakes in real-time in close proximity of the device?"**

In order to solve the above principal problem, the present invention provides **a portable snake detection and warning device.The device includes a set of sensors configured to sense in real time signals from a pre-defined proximity of device**, the sensors comprise of a microphone coupled to a resonating device to enable sensing of signals in frequency range of 10 Hz to 1 KHz, **a control unit comprising of one or more processors coupled to a dataset storage memory and the sensors to classify sensed signal by matching extracted parameters with a pre-loaded dataset**, **the control unit generates an alert signal based on positive matching of extracted parameters and pre-loaded dataset** and an alert unit coupled to control unit is configured to generate an audio and/or a visual alert based on generated alert signal which is an indication of detection of snake in the pre-defined close proximity of device.

The technical benefit achieved by the implementation of the present invention is that:

- ✓ The invention as per the present disclosure provides a snake detection and warning device that is configured to detect snakes in real time from a pre-defined proximity of the device.

- ✓ The invention as per the present disclosure provides a snake detection and warning device that generate any or a combination of an audio and a visual alert upon detection of the snake in the pre-defined close proximity of the device.
- ✓ The invention as per the present disclosure provides a snake detection and warning device that is portable, accurate, efficient and cost effective.

Further, the technical benefit achieved by the present invention is that, **"classifying of the sensed signals by matching the extracted parameters with a pre-loaded dataset which comprises of set of intensities and frequencies of sound signals associated with snakes."**

The technical advantages achieved by the implementation of the present invention is that:

- ✓ The device detect snakes with hiss intuition decoding and a warning system.
- ✓ The device does not require expensive and fragile sensors like camera and temperature sensors to detect the presence of snake in pre-defined proximity of the device.
- ✓ The device uses sensors comprising of microphone, wherein a resonating device and vibrating plates are configured to make the device portable.

Regarding objection on Inventive Step in view of D1, Applicant respectfully submits that, the cited prior art reference **D1 is a one kind drives snake device which includes a detection sensor and a vibration assembly controlled by a control circuit. The vibration assembly comprises an eccentric cam driven by a motor and an articulation sheet driven by the cam**. A discharge detector assembly comprise of a bottom insulating layer, an outer layer detection sensing ring and two groups of high pressure discharging rings controlled by a control circuit. The device have four ways of repelling snake: by vibration, by infrared light, by electric shock and by ultrasonic wave. **The device sends alarm information to a terminal device of a line maintenance**

**personnel through a short-message alarm circuit, and reminds the line maintenance personnel to carry out relevant processing in time.**

**D1 does not disclose when compared to the present invention the classifying of the sensed signals by matching the extracted parameters with a pre-loaded dataset comprising of set of intensities and frequencies of sound signals associated with snakes.**

Thus, on a detailed analysis of the document D1, the Applicant to specifically differentiate between the cited prior-art D1 and the present invention, respectfully submits that,D1 fails to disclose the above highlighted features of the claim 1.

**Applicant humbly and respectfully but strongly submits that, D1 does not disclose/ teach nor suggest the features as claimed in the amended independent claim 1 of the present invention.**

Regarding objection on Inventive Step in view of D2, Applicant respectfully submits that, the cited prior art reference **D2 discloses a portable 'snakeX' snake repellents by sending out vibrations across the ground to warn snakes away, the vibration patterns rotate over a period of time giving out different patterns of vibrations to warn snakes.**

**D2 does not disclose when compared to the present inventiona snake warning and detection device with sensors, control unit for extraction of parameters, classifying of signals by matching the parameters with pre-loaded data and an alert unit to generate an alert signal.**

Thus, on a detailed analysis of the document D2, the Applicant to specifically differentiate between the cited prior-art D2 and the present invention, respectfully submits that,D2 fails to disclose the above highlighted features of the claim 1. **Applicant humbly**

**and respectfully but strongly submits that, D2 does not disclose/ teach nor suggest the features as claimed in the amended independent claim 1 of the present invention.**

Thus, the above features of independent claim 1are not obvious to the person skilled in art in view of D1 & D2.

To summarize, the below table shows the missing/ differentiating features of the amended independent claim 1of the present invention and the cited prior-art references D1 & D2.

| **Present Invention (Independent Claim 1)** | **D1: CN107853287A** | **D2: 'Snake X- Advanced snake control'** | **Remarks/ Comments** |
|---|---|---|---|
| classify the sensed one or more signals by matching the extracted one or more parameters with a pre-loaded dataset comprising a set of intensities and frequencies of one or more sound signals associated with snakes; | D1 **simply has no disclosure** regarding the classification of sensed signals by matching of extracted parameters with pre-loaded dataset. | D2 **simply has no disclosure** regarding the classification of sensed signals by matching of extracted parameters with pre-loaded dataset. | D1 & D2 fail toexplicitly disclosethe claimed configuration of ***classify the sensed one or more signals by matching the extracted one or more parameters with a pre-loaded dataset comprising a set of intensities and frequencies of one or more sound*** |

| | | | |
|---|---|---|---|
| | | | ***signals associated with snakes;*** |

Thus, in view of the above technical and logical analysis, Applicant would like to respectfully and humbly submit that the documents D1-D2 alone or in combination do not suggest, explicitly or implicitly, the above mentioned configuration of amended independent claim 1 of the present invention and its technical benefits.

It is further respectfully brought to the kind attention of the Ld. Controller that it is a settled principle in the Patent Law that in order to challenge patentability of a patent application on the ground of lack of inventive step on the basis of prior arts, it is necessary to prove that the cited documents unambiguously disclose, *in combination*, all the features of the claimed invention in a manner in which they are constructed/structured/functions /operates enabling a skilled person to carry it out. ***(See for Determination of inventive step as recited in point 09.03.03.02 of MANUAL OF PATENT OFFICE PRACTICE AND PROCEDURE (MPPP) issued on November 26, 2019 by the office of CGPDTM.*** The Applicant respectfully submits that the cited prior art fail to unambiguously disclose the specific features of the amended independent claim 1.

Furthermore, D1-D2 does not give any hint or motivation to a person skilled in the art to arrive at the solution of the amended claims 1-3.Consequently, there is no consideration or suggestion in Documents D1-D2 that leads a person skilled in the art to the solution defined in the amended independent claim 1 as enclosed.

Further, it may be noted that the prior-art documents D1-D2 does not disclose any such technical benefits as achieved by the present invention. Also, there is no indication, teaching, suggestion and/or motivation provided in D1-D2 to combine related features of D1-D2 to arrive at the subject matter of the amended claims 1-3.

For at least the above reasons, Applicant respectfully traverses this ground of rejection for the reason that the cited prior art references, either alone or in combination, fail to disclose or suggest all of the features set forth in amended independent claim 1 and consequently does not render obvious amended independent claim 1. Therefore, amended independent claim 1 is believed to be patentable over the cited references.

Therefore, amended independent claim 1 of the present application is inventive over each of D1-D2 along or in combination. Claims dependent on amended independent claim 1 are also inventive over D1-D2 at least by virtue of their dependencies. Thus, the subject matter of the claims of the instant Indian application involves an *inventive step* over the cited references and thus meets the criteria U/S 2(1)(ja) of the Indian Patents Act.**Accordingly, the objection of Inventive Step may please be waived.**

## PARAGRAPH (2) – SUFFICIENCY OF DISCLOSURE

1.With regards to the objection that *"The subject matter of description shall disclose how the current invention solves the prior art problem in a manner sufficiently clear and complete for the invention to be carried out by a person skilled in the art as per section 10(4(b)) of the Patents Act 1970."*Applicant respectfully submits that the subject matter of the description discloses that the current invention solves the prior art problem clearly and completely and can be referred in Para 0043 and 0055. Paras 0043 discloses "classify the sensed signals by matching the extracted parameters with a pre-loaded dataset comprising a set of intensities and frequencies of one or more sound signals associated with snakes and generate an alert signal based on positive matching of the extracted parameters and the pre-loaded dataset." & Para 0055 discloses "receiving one or more sound signals from a set of sensors that can pertain to audio signal from insects, or animals, surrounding sounds or sound produced by snake." **Accordingly, the objection may please be waived.**

- ✓ 2. With regards to the objection that *"The invention as claimed should be disclosed in such a way that the technical problem, or problems, with which it deals can be appreciated and the solution can be understood, as per sections 10(4(a)) and 10(4(b)) of the Patents Act 1970."* Applicant respectfully submits that the invention which is device for detection and warning of snake is disclosed in the specification clearly and it shows how it solves the technical problems (background of the specification) with which it deals in the claims and the description of the specification. The technical problem disclosed in the background of the specification is that most of thermal sensors are susceptible to homogeneity at high temperatures and most sensors cannot detect frequencies less than 80Hz. The technical solution for the problem is the present invention that enables sensing of signals in real time in a frequency range of 10 Hz to 1KHz and the technical advancements is that the device does not require expensive and fragile sensors like camera and temperature sensors to detect the presence of snake in pre-defined proximity of the devices and uses sensors comprising of microphone, wherein a resonating device and vibrating plates are configured to make the device portable. **Accordingly, the objection may please be waived.**

3. With regards to the objection that *"Constructional details of the claimed features of the device shall be provided as per section 10(4(b)) of the Patents Act 1970."*Applicant respectfully submits that the constructional features like the sensors with microphones coupled with resonating device are disclosed in claim 2 and para 0047 of the description, control unit with processors and alert unit with vibrating unit are provided in the claim 1 and Paras 0043 and 0040. **Accordingly, the objection may please be waived.**

## PARAGRAPH (3) – CLARITY AND CONCISENESS

1.With regards to the objection that *"Technical features of the claim shall be referenced with numerals."* Applicant submits that technical features of the claim have been referenced with numerals. **Accordingly, the objection may please be waived.**

2. With regards to the objection that *"Claim 2 shall be written as per section 10(4(c)) of the Patents Act 1970."*Applicant respectfully submits that claim 2 has been merged and amended into independent claim 1. **Accordingly, the objection may please be waived.**

3. With regards to the objection that *"Constructional features of 'vibrating plates' shall be mentioned in the claims, as per section 10(4(c)) of the Patents Act 1970"* Applicant respectfully submits that claims 4, 5 and 6 have been merged and amended into one claim as vibrating plates have been claimed in claims 5 and 6. **Accordingly, the objection may please be waived.**

4. With regards to the objection that *"Ambiguous phrases like 'reduce the bulkiness', 'reduce complexity, 'less than about' etc. shall be suitably replaced."* Applicant submits that the phrases *'reduce the bulkiness'* and *'reduce complexity* have been deleted and '*less than about'* have been amended to *'less than'*. **Accordingly, the objection may please be waived.**

## PARAGRAPH (4) – OTHER REQUIREMENTS

With regards to the objection that *"In case the applicant decides to amend the claims subsequent to this report, the same shall be drafted afresh to include the technical advancement over the prior art as required u/s 2(1)(ja) of the Patents Act 1970 (as amended). Please provide an additional copy of marked up amendments (highlighting the amendments) where ever applicable. If any amendment is necessitated in the complete specification then it is required to clearly identify (submission of marked copy) the*

*amendments carried out and to indicate the portion (page no. and line no.) of the complete specification as filed on which these amendments are based on. Further the pages wherever amendments are carried out need to be freshly typed on white pages and to be filed in duplicate."* Applicant submits that the same has been duly noted & complied with.

## PART III- FORMAL REQUIREMENTS

**Endorsement by /Assignment from Inventor:**

1. Applicant would like to bring the kind attention of the Hon'ble Controller that no patent applications have been filed corresponding to the present invention outside India and hence no details regarding the same can be furnished under section 8 and rule 12(1) of Indian Patent Act & Rules. Hence, by virtue of the same this objection is rendered moot.
2. As mentioned above, since no patent applications corresponding to the present invention have been filed outside India hence there are no details regarding the search and/or examination report or claims of the application allowed u/s section 8(2) of the Indian Patents Act and Rule 12(3) of the Patent Rule, 2003 that can be submitted. Hence, by virtue of the same this objection is rendered moot.

**Power of Attorney (Whether GPA, SPA, Stamped, requisite fee etc.):**

- Applicant herewith respectfully re-submits the Notarized copy of PoA in prescribed format however the original Power of Attorney has been submitted at IPO for one of its other Patent **Application No. 201821020150**. Since GPA has already been filed at IPO along with required stamp duty for the case and is in conformity with the practice at IPO (as its being followed for all other cases of the Applicant). **Accordingly, the objection may please be waived.**

**In view of the foregoing submission, reconsideration and withdrawal of the objection under this section is respectfully requested.**

## PRAYER

It is therefore submitted:

(a) in view of the detailed observations submitted herein, the office objections may bedropped, withdrawn or waived, as the case be;

**(b) in view of all office requirement(s) having been met by the Applicant the application may be favorably considered for early grant without hearing;**

(c) a hearing opportunity to be given to the Applicant under section 14, in the interest of natural justice in case of any outstanding issue/objections;

(d) if any further requirement, clarification is required by the Controller, the Applicant is ready to consider the amendments proposed by the Controller to his satisfaction under the provisions of section 15, rule 28(5) prior to the Controller passing an order in this matter.

Yours Sincerely,

Tarun Khurana
Registered Patent Agent [IN/PA-1325]
Khurana & Khurana, Advocates & IP Attorneys

**Enclosures:**

1. Amended Claims: Marked Up & Clean Copy
2. Claims in prescribed manner
3. Drawings in prescribed manner
4. Form 5 in prescribed format
5. Copy of PoA in prescribed format