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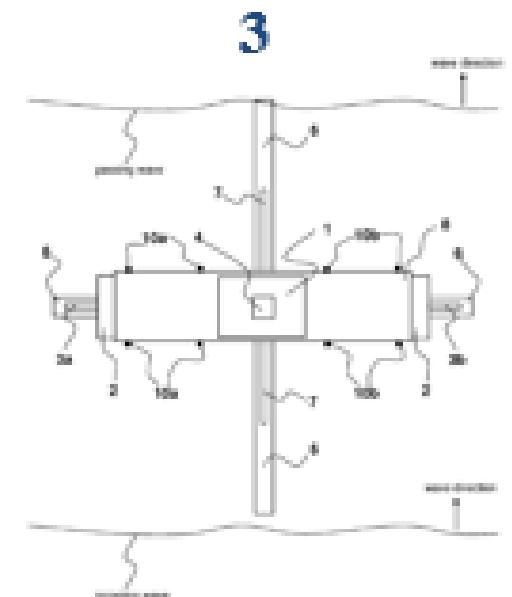
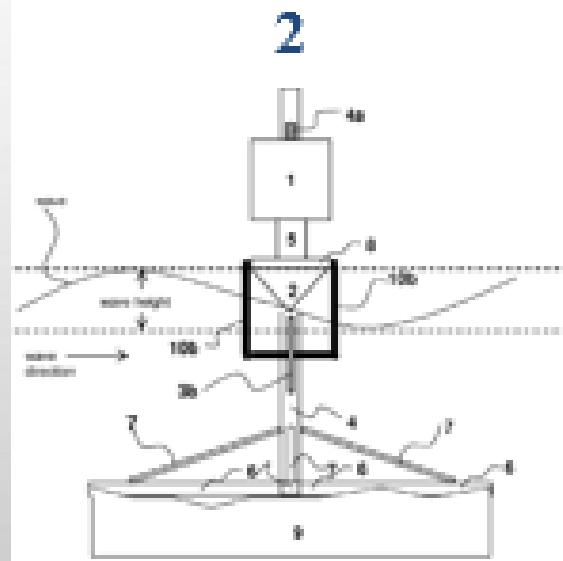
# **DESARROLLO DE CONCEPTO AGRO TECNOLOGICO PATENTADO: CASO DE ESTUDIO “DISPOSITIVO PARA COSECHAR CAFÉ CON MECANISMO OSCILANTE”**

**ING. AGR. GIANCARLO A. RUIZ MORALES, MBA**

**CHITRE, 26 DE OCTUBRE DE 2019**

# PROCESO DE CONCEPTUALIZACIÓN DE LA TECNOLOGÍA

- PARA PATENTAR, SOLO SE NECESITA CUMPLIR CON CUATRO CONDICIONES...
1. QUE LA TECNOLOGÍA O PRODUCTO CONCEPTUALIZADO SEA NUEVO
  2. QUE SEA ÚTIL
  3. QUE SEA LEGAL
  4. Y QUE SEA NO OBVIO



# PATENTE OTORGADA

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(54) Title: DEVICE FOR HARVESTING COFFEE HAVING AN OSCILLATING MECHANISM

(57) Abstract: The present invention consists of a device for more efficient harvesting of the ripe fruits of coffee trees, comprising an oscillating mechanism characterized for integrating a set of oscillating parallel cables causing the fruits to be pulled off from a line of branches full of ripe coffee and the coffee beans to progressively fall into the cylinder receiving the coffee fruits. The device prevents the operator from being in contact with the fruit, leaves or branches thus reducing the labour force used for the harvest, it also eliminates the risk for them to be bitten by any worm or insect. At the same time, by using the device hand contact with the coffee fruit is avoided, thus also avoiding cross pollution of the fruit and increasing the quality of the fruit harvesting.

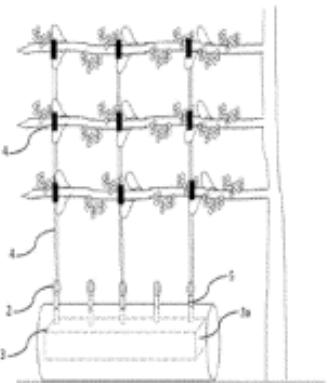


FIG. 1

(Continued on next page)

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A. CLASSIFICATION OF SUBJECT MATTER  
IPC(8)- A01D 46/26 (2018.01)  
CPC - A01D 2048/266

According to International Patent Classification (IPC) or to both national classification and IPC

### B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

See Search History Document

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

See Search History Document

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

See Search History Document

### C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 2 246 012 A1 (HELMUT SCHWIDT) 21 March 1974 (21.03.1974) entire document	1-5
A	DE 1 236 860 B (FAHR AG MASCHF) 16 March 1967 (16.03.1967) entire document	1-5
A	ES 2 191 533 A1 (CASCALES LOPEZ ANTONIO) 09 January 2003 (09.01.2003) entire document	1-5
A	ES 1 010 924 U1 (RACO INDUSTRIAL, S.A.) March 1990 (03.01.1990) entire document	1-5
A	GR 1006346 B (SKARTSIS DIONYSIS IOANNIS) 10 July 2005 (10.07.2005) entire document	1-5

Further documents are listed in the continuation of Box C.

See patent family annex.

- \* Special categories of cited documents:
  - "A" document defining the general state of the art which is considered to be of particular relevance
  - "B" earlier application or patent but published on or after the international filing date
  - "C" document which may throw doubt on priority claim(s) or which is cited to establish the publication date of another citation or other relevant prior art (as specified)
  - "D" document referring to an oral disclosure, use, exhibition or other means
  - "E" document published prior to the international filing date but later than the priority date claimed
  - "G" document member of the same patent family

Date of the actual completion of the international search | Date of mailing of the international search report

14 July 2018

02 AUG 2018

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Mail Stop PCT, Attn: ISA/US, Commissioner for Patents  
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Facsimile No.: 571-273-8300

Authorized officer: Lee W. Young  
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PCT 021 671 212 774

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# PROBLEMÁTICA ACTUAL

“MERMA EN LA COSECHA DE CAFÉ DEBIDO A LA ESCASEZ DE MANO DE OBRA POR EL USO DEL MÉTODO DE COSECHA MANUAL”.

- SE REGISTRAN PERDIDAS DEL **20%** DE GRANOS MADUROS, LO QUE REFLEJA UNA MERMA PROMEDIO DE 800 Y 900 DÓLARES (4 A 5QQ) POR HECTÁREA.
- EL **50%** DE LOS COSTOS DE PRODUCCIÓN ESTÁN EN LA COSECHA.
- SE REGISTRA UN DÉFICIT ACTUAL DE UN **20%** DE LA MANO DE OBRA PARA COMPLETAR LA COSECHA.



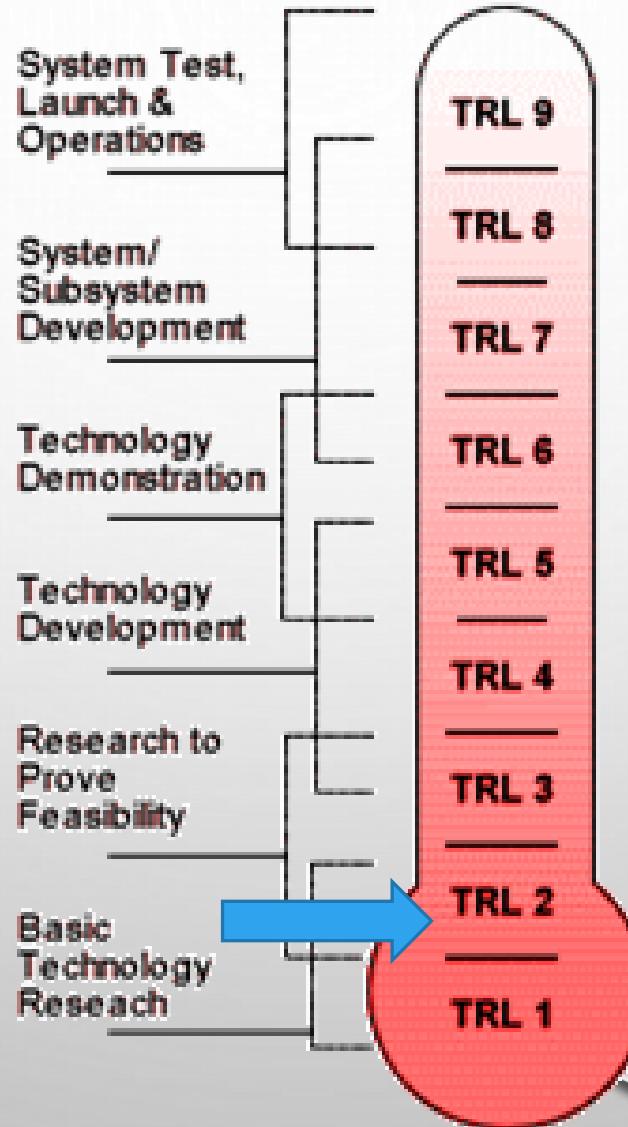
# SOLUCION

DISPOSITIVO CON MECANISMO OSCILANTE  
PARA LA COSECHA DE LOS FRUTOS DE  
CAFÉ MÁS PRECISA Y MAYOR CANTIDAD  
RECOLECTADA POR PASE.

ADAPTADO A LA MORFOLOGÍA VEGETAL DE  
LAS VARIEDADES OBATA Y CATUCAI POR  
SUS BONDADAS EN CUANTO A ALTO  
RENDIMIENTO DE FRUTOS, BUENA  
CAPACIDAD DE REBROTE Y RESISTENTE A LA  
ROYA (*HEMILEIA VASTATRIX*).



# NIVEL DEL DESARROLLO AGRO TECNOLOGICO



# PROTOTIPO 3D





# CARACTERISTICAS TECNICAS DEL DISPOSITIVO

- ✓ FÁCIL ARMADO Y MANTENIMIENTO.
- ✓ MATERIALES RESISTENTES A LAS INCLEMENCIAS DEL TIEMPO.
- ✓ FÁCIL MANEJO, POR SU PESO LIVIANO.
- ✓ USO DEL DISPOSITIVO, CADA 15 DÍAS DE ACUERDO AL PICO DE MADURACIÓN.
- ✓ DESPRENDIMIENTOS DE LA UNIÓN FRUTO-PEDÚNCULO, POR FATIGA FISIOLÓGICA POR MOVIMIENTO OSCILANTE (FUERZA INERCIAL).
- ✓ COSECHA PRECISA EN EL ESTADO OPTIMO DE MADURACIÓN DEL FRUTO DE CAFÉ.
- ✓ FRECUENCIA ADECUADA DEL MOVIMIENTO OSCILANTE VERTICAL HACIA LA BANDOLA.



# LÍNEA DE TIEMPO



ETAPA 1

ETAPA 2

ETAPA 3

2019

2020

2021

I+D DEL  
PROTOTIPO

FABRICACION Y  
VALIDACION DEL  
PROTOTIPO

LICENCIAMIENTO  
Y  
COMERCIALIZACIÓN

# EQUIPO DE TRABAJO

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  - DR. PABLO MONTERO
  - DR. EDWIN COLLADO
- 
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  - LIC. PLINIO RUIZ (CAFÉ RUIZ)
  - RICARDO SOTO (CAFETALES, S.A)
  - ASOCIACIÓN DE PRODUCTORES DE RENACIMIENTO



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# ¡Muchas Gracias!

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