

የኢትዮጵያ አዕምሯዊ ንብረት ባለስልጣን
ETHIOPIAN INTELLECTUAL PROPERTY AUTHORITY

የአዕምሯዊ ንብረት ጋዜጣ
INTELLECTUAL PROPERTY GAZETTE

ቅጽ 21፣ ቁጥር፣3 — ህዳር 30,2017

Vol. 21. No.3 — Dece.09,2024

በየወሩ የሚታተም

Published every months

በህዝብ ዘንድ
የአአምሯዊ ንብረት
ዕውቀትና ግንዛቤ
አንዲዳብር አንሰራለን።



የኢትዮጵያ አዕምሯዊ ንብረት ባለስልጣን

ETHIOPIAN INTELLECTUAL PROPERTY AUTHORITY

የአዕምሯዊ ንብረት ጋዜጣ

INTELLECTUAL PROPERTY GAZETTE

ቅጽ 21፣ ቁጥር፣3 — ህዳር 30,2017

Vol. 21. No.3 — Dece.09,2024

በየወሩ የሚታተም

Published every months

ማውጫ / CONTENTS

1.መግቢያ/ Introduction.....1

2.የግልጋሎት ሞዴል የተቃዉሞ ጥሪና /Cautionary Notice/ ቢቢሎግራፊክ መረጃ /Bibliographic Data/.....2

3. ግልጋሎት ሞዴል ሠርተፊኬት የተሰጠ UTILITY MODEL TITLES GRANTED.....29

4.የተመረጡ የቴክኖሎጂ መረጃዎች /Selected Technological Information/

የኢትዮጵያ ከእምዊዊ ንብረት ባለስልጣን
Ethiopian Intellectual Property Authority

ቅጽ 21 ቁጥር, 3
Vol. 21 No. 3

የኢትዮጵያ አእምሯዊ ንብረት ባለስልጣን
Ethiopian Intellectual Property Authority

መግቢያ

በዚህ እትም ውስጥ የጥበቃ መብት የተሰጣቸው የግልጋሎት ሞዴልና ኢንዱስትሪያል ዲዛይን ቢብሎግራፊ መረጃዎች፣ የግልጋሎት ሞዴል ተቃውሞ ጥሪ ማስታወቂዎች፣የሀገር ውስጥና የውጭ ሀገር የንግድ ምልክት ምዝገባ፣ የተመረጡ የቴክኖሎጂ መረጃዎች እና የፈጠራ ሥራ ባለቤቶች ሊያውቋቸው የሚገቡ ነጥቦችን የያዙ አምዶች ተካተዋል፡፡

በግልጋሎት ሞዴልና ቢብሎግራፊ መረጃዎች እና የፈጠራ ስራ የተቃውሞ ጥሪ ማስታወቂያዎች ሥር **28 የተቃዉሞ ጥሪ የግልጋሎት ሞዴል ማስታወቂያዎች እና 5 ጥበቃ ያገኙ የግልጋሎት ሞዴል ስራዎች ሰርተፊኬት** ተስተናግደዋል፡፡

በተመረጡ የቴክኖሎጂ መረጃዎች አምድ /BIOMETRIC TURNSTILE GATE/ በሚል ርዕስ በፖተንት ሰነድ የታቀፈ የቴክኖሎጂ መረጃ በናሙናነት ቀርቧል፡፡

በዚህ አጋጣሚ ለውድ አንባቢያን፣ ተመራማሪዎች፣ የቴክኖሎጂ ባለሙያዎች፣ የፈጠራ ባለሙያዎችና ኢንቨስተሮች ለመግለጽ የምንወደው በጽ/ቤታችን እነዚህን የመሳሰሉና በሌሎችም መስኮች ለሀገራችን የቴክኖሎጂ ልማትና እድገት የሚረዱ በፖተንት ሰነድ የታቀፉ በርካታ የቴክኖሎጂ መረጃዎች ክምችትእንዳለና መረጃዎቹም ለማንኛውም ተጠቃሚ ክፍት እንደሆኑ ነው፡፡

Introduction

Under this publication, Utility Model and Industrial Design Rights Granted/Bibliographic Information, and Utility Model Cautionary Notices, Registered Domestic and Foreign Trade Marks and Selected Technological Information columns are addressed.

In the Utility Model Rights Granted Bibliographic Information, and Utility Model Cautionary Notice section, **28 Utility Model Cautionary notice abstracts and 5 Granted Utility Model** applications are made Public.

Full texts of technological information contained in Patent documents are also dealt with under selected Technological Information Columns.

We would like to remind our readers, researchers, technologists, inventors, and investors that we have a lot of technological information contained in patent documents in our Office which can be accessed by any user.

አመልካች ሳሙኤል ታየ እጅጉ አጭር ይዘቱ ከታች ለተመለከተው አነስተኛ ፈጠራ የግልጋሎት ሞዴል የምስክር ወረቀት እንዲሰጣቸው የጠየቁ በመሆኑ ይህ አነስተኛ ፈጠራ የእኔ ነው ወይም ከዚህ በፊት በኢትዮጵያ ውስጥ ጥቅም ላይ ውሏል ባይ ካለ ይህ ማስታወቂያ በጋዜጣ ከወጣበት ቀን ጀምሮ ባሉት ስልሳ (60) ቀናት ውስጥ የተቃውሞ ማመልከቻውን ለኢትዮጵያ አእምሯዊ ንብረት ባለስልጣን ሊያቀርብ የሚችል መሆኑን እየገለጽን፤ በተባለው ጊዜ ውስጥ የተቃውሞ ማመልከቻውን ካላቀረበ በሕጉ መሠረት ባለስልጣን መስሪያ ቤቱ ለአመልካቹ የጥበቃ ማረጋገጫ ሠርተፊኬት የሚሰጥ መሆኑን ያሳውቃል።

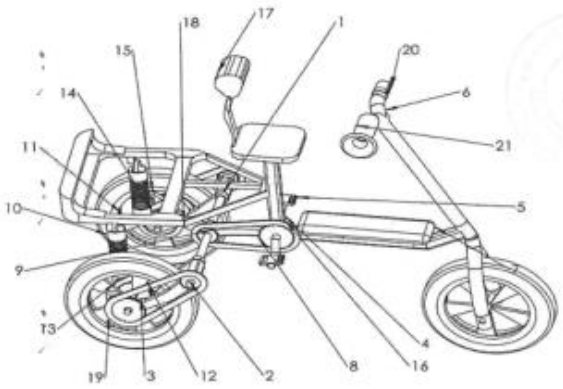
አነስተኛ ፈጠራው **በከፍተኛ ፕሮቲን የበለፀገ እና ሃይል ሰጪ የምግብ ዱቄት አዘገጃጀት ዘዴ** ነው። ይህ ፈጠራ በምግብ ይዘት የበለፀገ ከፍተኛ ፕሮቲንና ሀይል ሰጪ ዱቄት ማምረት ሆኖ በዋናነት የምንጠቀማቸው ግብዓቶችም አትክልትና ፍራፍሬ፣ እህል ማለትም ስንዴ፣ በቆሎ፣ ገብስ፣ ጤፍ፣ የጥራጥሬ አይነቶች ጎያ ባቄላ አተር ለውዝ፣ አኩሪ፣ አተርና ከቅባት እህሎች፣ ለውዝ፣ ሱፍ ኑግ፣ ተልባ፣ እና የዱቄት ወተት (whole milk powder)፣ እና ዓሣ እንዲሁም ከቀይ ስጋ የሚሠራ ሲሆን እንደ ማባያና በተለያየ መልኩ ለመመገብ የሚውሉ ማባያዎች ከበርበሬ፣ ቅመማ ቅመም እና ቲማቲም ዱቄት የተዘጋጀ ምጥን ጋር ተዘጋጅቶ ለተጠቃሚዎች የሚቀርብ በየ ዘርፉ በዱቄት መልክ ፕሮሰስ የሚደረግ ፈጠራ ነው።

ET/UM/2024/4657

****

አመልካች ደስታው በለጠ መኮንን አጭር ይዘቱ ከታች ለተመለከተው አነስተኛ ፈጠራ የግልጋሎት ሞዴል የምስክር ወረቀት እንዲሰጣቸው የጠየቁ በመሆኑ ይህ አነስተኛ ፈጠራ የእኔ ነው ወይም ከዚህ በፊት በኢትዮጵያ ውስጥ ጥቅም ላይ ውሏል ባይ ካለ ይህ ማስታወቂያ በጋዜጣ ከወጣበት ቀን ጀምሮ ባሉት ስልሳ (60) ቀናት ውስጥ የተቃውሞ ማመልከቻውን ለኢትዮጵያ አእምሯዊ ንብረት ባለስልጣን ሊያቀርብ የሚችል መሆኑን እየገለጽን፤ በተባለው ጊዜ ውስጥ የተቃውሞ ማመልከቻውን ካላቀረበ በሕጉ መሠረት ባለስልጣን መስሪያ ቤቱ ለአመልካቹ የጥበቃ ማረጋገጫ ሠርተፊኬት የሚሰጥ መሆኑን ያሳውቃል።

አነስተኛ ፈጠራው ባለ ሦስት እግር የፔዳል እና የኤሌክትሪክ ብስክሌት ነው። ይህ ፈጠራ ባለ ሦስት እግር የፔዳል እና የኤሌክትሪክ ብስከሌት ሆኖ በዋናነት የፊት ጎማን፣ ፍሬን እና የኤሌክትሪክ ኃይል መቆጣጠሪያ "throttle"የሚይዝ የፊት ፍሬም(6)፣ lithium ion battery pack(7)፣ የአሽከርካሪ መቀመጫ ወምበር(17) እንሁም ሁሉንም የኋላ አካላት የሚሸከም አግዝል (axel) የሚይዝ ዋናው ፍሬም(1)፣ ፔዳል(4)፣ ሰንሰለት(2)፣ "350W Brushless motor (12)" የኋላ ጎማዎች, አሞዝራተር (shock absorber) (10) እና የእቃ መጫኛ (uggage compartment)(18) ዋና ዋና ክፍሎቹ ሲሆኑ አንድ ጎማ ከፊት እና ሁለት ጎማወች ከኋላ የሚገጠሙ ሲሆን፣ በሁለት መነገድ መጎለበት የሚችል(በሊቲየም አዮን ባትሪ እና በእግር ፔዳል) ድብልቅ የፔዳል እና የእኢሌክትሪክ መሆኑ የባትሪ ኃይል እጥረት በሚያጋጥመው ጊዜ በፔዳል በመታገዝ የፈለገው ቦታ የሚያደርስና የማይመች መልከዓምድር ባጋጠመ ጊዜ የእኢሌክትሪክ ሞተሩን ጉልበት መዉጣት ካልቻለ በእግር ፔዳል በመታገዝ እንዲወጣ የሚያደርግ ባለ ሶስት ጎማ ንድፍ መረጋጋትን የሚያጠነክር ባለ ሦስት እግር የፔዳል እና የኤሌክትሪክ ብስከሌት ፈጠራ ነዉ።

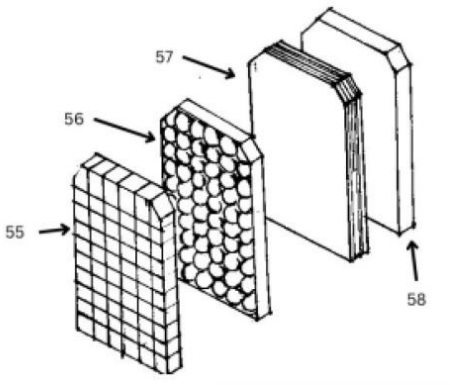


ET/UM/2024/4658

****

አመልካች Nathenael Zemedkun አጭር ይዘቱ ከታች ለተመለከተው አነስተኛ ፈጠራ የግልጋሎት ሞዴል የምስክር ወረቀት እንዲሰጣቸው የጠየቁ በመሆኑ ይህ አነስተኛ ፈጠራ የእኔ ነው ወይም ከዚህ በፊት በኢትዮጵያ ውስጥ ጥቅም ላይ ውሏል ባይ ካለ ይህ ማስታወቂያ በጋዜጣ ከወጣበት ቀን ጀምሮ ባሉት ስልሳ (60) ቀናት ውስጥ የተቃውሞ ማመልከቻውን ለኢትዮጵያ አእምሯዊ ንብረት ባለስልጣን ሊያቀርብ የሚችል መሆኑን እየገለጽን፤ በተባለው ጊዜ ውስጥ የተቃውሞ ማመልከቻውን ካላቀረበ በሕጉ መሠረት ባለስልጣን መስሪያ ቤቱ ለአመልካቹ የጥበቃ ማረጋገጫ ሠርተፊኬት የሚሰጥ መሆኑን ያሳውቃል።

The invention is **Multi-layer ceramic sphere plates and reinforced Amour**. Based on the object of providing armoring that is lightweight and exhibits a denser micro structure that is improved as against ceramic composite materials. To this end, armoring against high dynamic impulsive loads is provided that comprises a composite material having at least two phases, the first phase forming a matrix for the second phase, and the first phase being a glass or a glass ceramic, and the second phase being embedded and distributed in the form of particles and/or fibers in the matrix formed by the material of the first phase.



ET/UM/2024/4659

****

አመልካች አሚና ከማል ሺፋ እና መሐመድ አሊ ኢድሪስ አጭር ይዘቱ ከታች ለተመለከተው አነስተኛ ፈጠራ የግልጋሎት ሞዴል የምስክር ወረቀት እንዲሰጣቸው የጠየቁ በመሆኑ ይህ አነስተኛ ፈጠራ የእኔ ነው ወይም ከዚህ በፊት በኢትዮጵያ ውስጥ ጥቅም ላይ ውሏል ባይ ካለ ይህ ማስታወቂያ በጋዜጣ ከወጣበት ቀን ጀምሮ ባሉት ስልሳ (60) ቀናት ውስጥ የተቃውሞ ማመልከቻውን ለኢትዮጵያ አእምሯዊ ንብረት ባለስልጣን ሊያቀርብ የሚችል መሆኑን እየገለጽን፤ በተባለው ጊዜ ውስጥ የተቃውሞ ማመልከቻውን ካላቀረበ በሕጉ መሠረት ባለስልጣን መስሪያ ቤቱ ለአመልካቹ የጥበቃ ማረጋገጫ ሠርተፊኬት የሚሰጥ መሆኑን ያሳውቃል።

አነስተኛ ፈጠራው **ቆሻሻን መልሶ በመጠቀም የእግረኛ የወለል ንጣፍ እና የትቦ ወይም የፓሴት ክዳን የማምረትዘዴ/** ነው። ይህ ፈጠራ ቆሻሻን መልሶ በመጠቀም ቴራሶ ወይም የእግረኛ የወለል ንጣፍ እና የፖሴት ክዳን የማምረት ዘዴ ሆኖ ቆሻሻን ከማስወገድ ባሻገር ወደ ሦስት ጊዜ እና ከዛም በላይ ወደተለያዩ የምርትና ቅርፅ አይነቶች ቀያይረን ወደ ገንዘብ መቀየር እና የአካባቢን ደህንነት ማስተካከል ብሎም ከባቢ አየርን ለማስተካከል የሚረዳን የአዘገጃጀት ሂደት ነው።

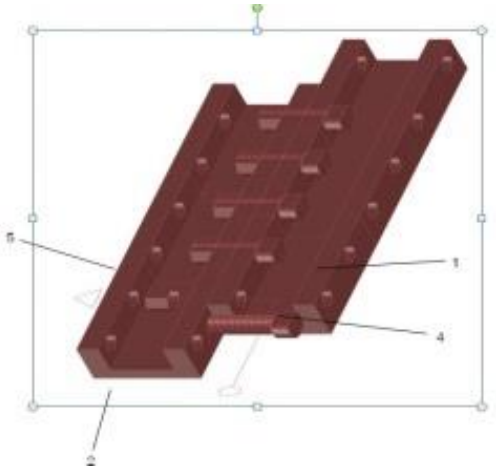
ET/UM/2024/4660

****

አመልካች **ካሊድ ኑራ አባቡላ** አጭር ይዘቱ ከታች ለተመለከተው አነስተኛ ፈጠራ የግልጋሎት ሞዴል የምስክር ወረቀት እንዲሰጣቸው የጠየቁ በመሆኑ ይህ አነስተኛ ፈጠራ የእኔ ነው ወይም ከዚህ በፊት በኢትዮጵያ ውስጥ ጥቅም ላይ ውሏል ባይ ካለ ይህ ማስታወቂያ በጋዜጣ ከወጣበት ቀን ጀምሮ ባሉት ስልሳ (60) ቀናት ውስጥ የተቃውሞ ማመልከቻውን ለኢትዮጵያ አእምሯዊ ንብረት ባለስልጣን ሊያቀርብ የሚችል መሆኑን እየገለጽን፤ በተባለው ጊዜ ውስጥ የተቃውሞ ማመልከቻውን ካላቀረበ በሕጉ መሠረት ባለስልጣን መስሪያ ቤቱ ለአመልካቹ የጥበቃ ማረጋገጫ ሠርተፊኬት የሚሰጥ መሆኑን ያሳውቃል።

አነስተኛ ፈጠራው **ተገጣጣሚ የድንጋይ ብሎኬት** ነው። ይህ ብሎኬት ተገጣጣሚ የድንጋይ ብሎኬት ሆኖ በስዕል አንድ ላይ ብሎን ማስገቢያ ቀዳዳዎች (1)፣ የብሎኬቱን ክብደት ለመቀነስ፣ ለክየታ (insulation)፣ ለመብራትና ውሃ ዝርጋታ መተላለፊያ አግድም ቀዳዳ (2)፣ የተለያዩ ዲዛይኖችና ማሳመሪያዎች የሚያርፍበት ውሃ የማያስገባ (water proof) ሽፋን (3)፣ የብረት ብሎን (4) እና ዳዶ (5)

የያዘ ሆኖ በግምባታ ወቅት የብረት ብሎኖችን ብቻ በመጠቀም ያለምንም ተጨማሪ የግምባታ ግብአቶችና ባለሞያ በቀላሉና በፍጥነት የሚገጣጠም፣ ተጨማሪ ማሳመር (finishing) **የማይፈልግ ሲሆን ግድግዳውን ማፍረስ ሲፈለግም ብሎኖችን በመፍታት ብሎኬቶቹን በቀላሉ በመነጣጠል ሳይጎዱ መልሶ ለመጠቀም የሚያስችል ብሎኬት ነው።**



ET/UM/2024/4664

****

አመልካች Addis Ababa University አጭር ይዘቱ ከታች ለተመለከተው አነስተኛ ፈጠራ የግልጋሎት ሞዴል የምስክር ወረቀት እንዲሰጣቸው የጠየቁ በመሆኑ ይህ አነስተኛ ፈጠራ የእኔ ነው ወይም ከዚህ በፊት በኢትዮጵያ ውስጥ ጥቅም ላይ ውሏል ባይ ካለ ይህ ማስታወቂያ በጋዜጣ ከወጣበት ቀን ጀምሮ ባሉት ስልሳ (60) ቀናት ውስጥ የተቃውሞ ማመልከቻውን ለኢትዮጵያ አእምሯዊ ንብረት ባለስልጣን ሊያቀርብ የሚችል መሆኑን እየገለጽን፤ በተባለው ጊዜ ውስጥ የተቃውሞ ማመልከቻውን ካላቀረበ በሕጉ መሠረት ባለስልጣን መስሪያ ቤቱ ለአመልካቹ የጥበቃ ማረጋገጫ ሠርተፊኬት የሚሰጥ መሆኑን ያሳውቃል።

The minor invention is **Preparation of Xanthn Gum form Xanthomonas Campestris cdt1 and cdt2.** The provided herein is a method of producing xanthan gum from a local isolate of Xanthomonas campestris cdt1. It provides a non-cloned strain,

namely Xanthomonas Campestris cdt1, which is suitable for efficient fermentation production in the lab and large-scale xanthan gum production. According to the invention, by isolating Xanthomonas Campestris cdt1 and the application method thereof disclosed by the invention, xanthan gum can be efficiently fermented and produced via steps that may include activation culturing, liquid seed culturing, fermentation culturing, and xanthan gum precipitating. The strain disclosed by the invention can be used for efficiently fermenting and producing xanthan gum by taking sucrose and glucose as carbon sources and peptone, yeast extract, ammonium sulfate, and ammonium chloride as nitrogen sources.

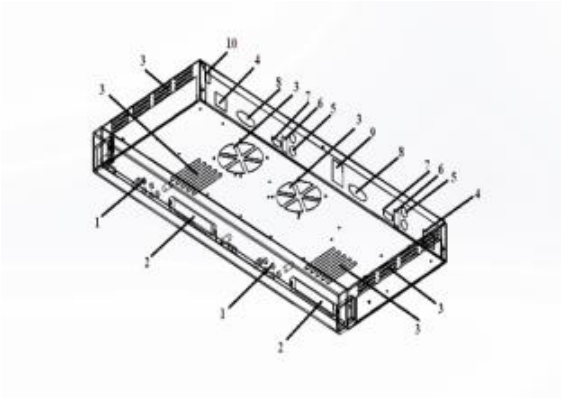
ET/UM/2024/4665

****

አመልካች IOEQ SOLUTIO PLC አጭር ይዘቱ ከታች ለተመለከተው አነስተኛ ፈጠራ የግልጋሎት ሞዴል የምስክር ወረቀት እንዲሰጣቸው የጠየቁ በመሆኑ ይህ አነስተኛ ፈጠራ የእኔ ነው ወይም ከዚህ በፊት በኢትዮጵያ ውስጥ ጥቅም ላይ ውሏል ባይ ካለ ይህ ማስታወቂያ በጋዜጣ ከወጣበት ቀን ጀምሮ ባሉት ስልሳ (60) ቀናት ውስጥ የተቃውሞ ማመልከቻውን ለኢትዮጵያ አእምሯዊ ንብረት ባለስልጣን ሊያቀርብ የሚችል መሆኑን እየገለጽን፤ በተባለው ጊዜ ውስጥ የተቃውሞ ማመልከቻውን ካላቀረበ በሕጉ መሠረት ባለስልጣን መስሪያ ቤቱ ለአመልካቹ የጥበቃ ማረጋገጫ ሠርተፊኬት የሚሰጥ መሆኑን ያሳውቃል።

The minor invention is Music **Royalty Collection System.** The Music Royalty Collection System is an innovative, automated solution designed to address the challenges of music royalty collection across broadcasting stations and public venue. The system integrates cutting-edge hardware, including the Scorpio figure (1) & (2) and Spider devices figure (3) & (4), for real-time audio capture and edge computing, along with a software platform for centralized data management and

royalty distribution. By leveraging advanced audio fingerprinting algorithms, ensures accurate monitoring of music usage, enabling fair compensation for artists, producers, and rights holders. The use of edge computing optimizes efficiency by reducing latency, while the cloud-based backend facilitates scalability and transparency in the royalty collection process. This system provides comprehensive coverage, from TV and radio stations to public spaces like hotels and nightclubs, revolutionizing how royalties are tracked and distributed with accuracy and efficiency.

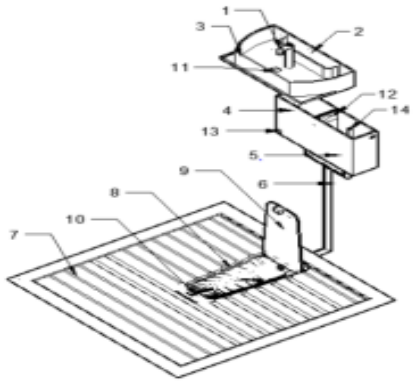


ET/UM/2024/4666

****

አመልካች ታመነ ተፈራ መንግስቱ ይዘቱ ከታች ለተመለከተው አነስተኛ ፈጠራ የግልጋሎት ሞዴል የምስክር ወረቀት እንዲሰጣቸው የጠየቁ በመሆኑ ይህ አነስተኛ ፈጠራ የእኔ ነው ወይም ከዚህ በፊት በኢትዮጵያ ውስጥ ጥቅም ላይ ውሏል ባይ ካለ ይህ ማስታወቂያ በጋዜጣ ከወጣበት ቀን ጀምሮ ባሉት ስልሳ (60) ቀናት ውስጥ የተቃውሞ ማመልከቻውን ለኢትዮጵያ አእምሯዊ ንብረት ባለስልጣን ሊያቀርብ የሚችል መሆኑን እየገለጽን፤ በተባለው ጊዜ ውስጥ የተቃውሞ ማመልከቻውን ካላቀረበ በሕጉ መሠረት ባለስልጣን መስሪያ ቤቱ ለአመልካቹ የጥበቃ ማረጋገጫ ሠርተፊኬት የሚሰጥ መሆኑን ያሳውቃል።

አነስተኛ ፈጠራው መታጠቢያን አብሮ የያዘ መካኒካል መጸዳጃ ሲንክ ነው። ይህ ፈጠራ መታጠቢያን አብሮ የያዘ መካኒካሌ መጸዳጃ ሲንክ ሲሆን በውስጡ የሻወር ሲንክን (7)፣ በእግር የሚከፈተና የሚዘጋ ሜካኒካሌ የምጸዳጃ ሲንክን (8)፣የምጸዳጃ ውሃ መያዣ ታነከር (4)፣ የማጽጃ ውሃና ሽታ ማስወገጃ ኬሚካሌ መያዣ ታንከርን /5/ ና የእጅ መታጠቢ ሲንክን /3/ የያዘ ሁኖ ሁለንም የጽዳት አገሌግልቶች በአንድ ጠባብ ቦታ ላይ ለማግኘት ፣ የመስመር ውሃ በሚጠፋበት ጊዜ ከእጅ ንክኪ ነፃ በሆነ መንግድ ለመጸዳዳት፣ ከተጸዳዱ በኋሊ ከውሃ ጋር የተቀላቀለ ኬሚካሌ በመሌቀቅ ሽታ እነዳይኖር ለማድረግ እንዲሁም በተለያየ መስመር የሚፈሰውን ውሃ መሌሶ ለመጠቀም ታስቦ የተዘጋጀ ጥምር መታጠቢያና ሜካኒካሌ መጸዳጃ ሲንክ ነው።

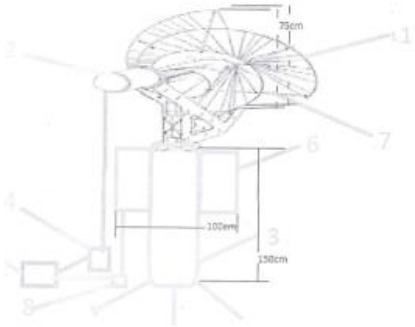


ET/UM/2024/4667

****

አመልካች Haftom G/Hiwot, Dejen Tajebe, Haylay G/medhin, Amanuel G/hiwot and Zafu Gidey አጭር ይዘቱ ከታች ለተመለከተው አነስተኛ ፈጠራ የግልጋሎት ሞዴል የምስክር ወረቀት እንዲሰጣቸው የጠየቁ በመሆኑ ይህ አነስተኛ ፈጠራ የእኔ ነው ወይም ከዚህ በፊት በኢትዮጵያ ውስጥ ጥቅም ላይ ውሏል ባይ ካለ ይህ ማስታወቂያ በጋዜጣ ከወጣበት ቀን ጀምሮ ባሉት ስልሳ (60) ቀናት ውስጥ የተቃውሞ ማመልከቻውን ለኢትዮጵያ አእምሯዊ ንብረት ባለስልጣን ሊያቀርብ የሚችል መሆኑን እየገለጽን፤ በተባለው ጊዜ ውስጥ የተቃውሞ ማመልከቻውን ካላቀረበ በሕጉ መሠረት ባለስልጣን መስሪያ ቤቱ ለአመልካቹ የጥበቃ ማረጋገጫ ሠርተፊኬት የሚሰጥ መሆኑን ያሳውቃል።

The minor invention is **hybrid energy generator using Archmeds wind turbine and solar panel.** This design of hybrid energy generator using Archimedes wind turbine and solar panel that contains De motor, battery, controller, and structures that carries for the blade as well as solar panel integrated with the structure. This Hybrid Energy (solar and wind) can be used in community service for rural, semi-rural as well as urban societies. This design of hybrid energy generator using Archimedes wind turbine and solar panel technology for the household level mainly contains the components assigned from numbers 1-8 As seen in Figures 1 and 2 the hybrid system is mainly comprised of**/1/** wind turbine to harness the wind; **/2/** De motor used to change mechanical energy to electrical energy, **/3/** main frame used to carry the whole body; **/4/** controller used control voltage, **/5/** battery used to save energy,**/6/** solar panel used to harness sun energy, **/7/** blade supporter used to support the blade and **/8/** solar panel controller used to control the voltage. The present design enables the Hybrid Energy (solar and wind) have high efficiency when we compare with its impact.



ET/UM/2024/4669

****

አመልካች Kahsu Fisseha, Kalab Cherkos and Kbret Tajebe አጭር ይዘቱ ከታች ለተመለከተው አነስተኛ ፈጠራ የግልጋሎት ሞዴል የምስክር ወረቀት እንዲሰጣቸው የጠየቁ በመሆኑ ይህ አነስተኛ ፈጠራ የእኔ ነው ወይም ከዚህ በፊት በኢትዮጵያ ውስጥ ጥቅም ላይ ውሏል ባይ ካለ ይህ ማስታወቂያ በጋዜጣ ከወጣበት ቀን ጀምሮ ባሉት ስልሳ (60) ቀናት ውስጥ የተቃውሞ ማመልከቻውን ለኢትዮጵያ አእምሯዊ ንብረት ባለስልጣን ሊያቀርብ የሚችል መሆኑን እየገለጽን፤ በተባለው ጊዜ ውስጥ የተቃውሞ ማመልከቻውን ካላቀረበ በሕጉ መሠረት ባለስልጣን መስሪያ ቤቱ ለአመልካቹ የጥበቃ ማረጋገጫ ሠርተፊኬት የሚሰጥ መሆኑን ያሳውቃል።

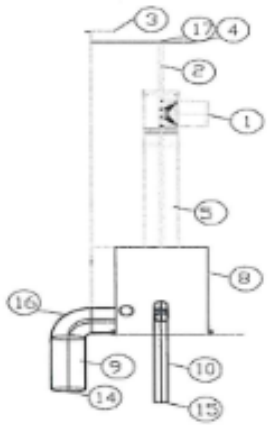
The minor invention is **Binder-less Briquette CharcoaL**. The Binder-Less Briquette Charcoal Manufacturing processes involves collecting, crushing, Drying, Compressing High Pressure and Temperature without the use of Binders and finally Carbonizing of sawdust and solid biomass wasters resulting in high –quality briquette charcoal. This invention provides suitable and cost-effective method for producing Briquette Charcoal without the use of binders. This enables a reduction of Environmental impact and production costs.

ET/UM/2024/4670

****

አመልካች Haftom G/Hiwot G/egzihaber አጭር ይዘቱ ከታች ለተመለከተው አነስተኛ ፈጠራ የግልጋሎት ሞዴል የምስክር ወረቀት እንዲሰጣቸው የጠየቁ በመሆኑ ይህ አነስተኛ ፈጠራ የእኔ ነው ወይም ከዚህ በፊት በኢትዮጵያ ውስጥ ጥቅም ላይ ውሏል ባይ ካለ ይህ ማስታወቂያ በጋዜጣ ከወጣበት ቀን ጀምሮ ባሉት ስልሳ (60) ቀናት ውስጥ የተቃውሞ ማመልከቻውን ለኢትዮጵያ አእምሯዊ ንብረት ባለስልጣን ሊያቀርብ የሚችል መሆኑን እየገለጽን፤ በተባለው ጊዜ ውስጥ የተቃውሞ ማመልከቻውን ካላቀረበ በሕጉ መሠረት ባለስልጣን መስሪያ ቤቱ ለአመልካቹ የጥበቃ ማረጋገጫ ሠርተፊኬት የሚሰጥ መሆኑን ያሳውቃል።

The minor invention is **Movable Pump.** Immersing either the 7.5 cm internal diameter UPVC pipe or 34 internal diameter ppr pipes (1) te the water body or well then fixing the pipe with the gh pump (2) to stable and erect perpendicularly tying by joiner and pin (3). The next step will be joining or fixing the handling tube (6) with connectin rod (5) by T- fitting (4). Finally, when we lift up the connecting rod (5) by handling tube the plastic light plate (7) joined in the gate valve (8) and check valve (9) will be opened due to both water pressure and air pressure as a result water enter to UPVC pipe or stand pipe. Immediately, when pull down the connecting rod by handling the check valve (9) is constantly installed at the inlet of UPVC pipe te control back flow of water and the gate valve control flow of water and reduce pressure of water in pipe by entering air. Repeating this action will elevate water to delivery pipe (10). Spring (11) used to bouncing up and down the gate valve.

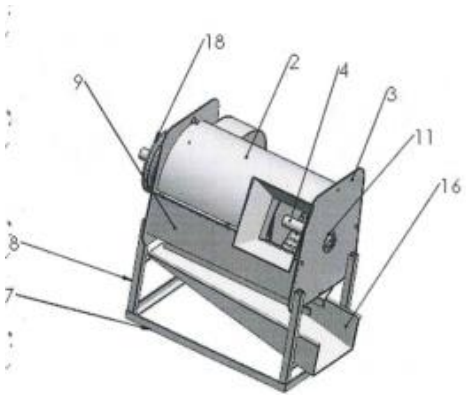


ET/UM/2024/4671

****

አመልካች Assefa Beyene Ayalew, Bekalu Nebiy Endalew and Bekalu Sintayew Ayele አጭር ይዘቱ ከታች ለተመለከተው አነስተኛ ፈጠራ የግልጋሎት ሞዴል የምስክር ወረቀት እንዲሰጣቸው የጠየቁ በመሆኑ ይህ አነስተኛ ፈጠራ የእኔ ነው ወይም ከዚህ በፊት በኢትዮጵያ ውስጥ ጥቅም ላይ ውሏል ባይ ካለ ይህ ማስታወቂያ በጋዜጣ ከወጣበት ቀን ጀምሮ ባሉት ስልሳ (60) ቀናት ውስጥ የተቃውሞ ማመልከቻውን ለኢትዮጵያ አእምሯዊ ንብረት ባለስልጣን ሊያቀርብ የሚችል መሆኑን እየገለጽን፤ በተባለው ጊዜ ውስጥ የተቃውሞ ማመልከቻውን ካላቀረበ በሕጉ መሠረት ባለስልጣን መስሪያ ቤቱ ለአመልካቹ የጥበቃ ማረጋገጫ ሠርተፊኬት የሚሰጥ መሆኑን ያሳውቃል።

The minor invention is **Motorized Maize Thresher Machine.** This invention a motorized maize thresher machine has the following parts. Which are concave **/1/**, dome **/2/**, side plate **/3/**, hallow shaft **/4/**, triangle **/5/**, beater **/6/**, base support **/7/**, leg **/8/**, side cover **/9/**, hopper**/10/**, bearing housing **/11/**, hex flange nut **/15/**, outlet **/16/**, outlet holder **/17/** and pulley **/18/.** This machine can thresh approximately **4000** kilograms of maize products, equivalent to **40** quintals, within an hour. This invention can address and solve the wastage of maize products from sudden rains and also prevents losses destroyed by animals.

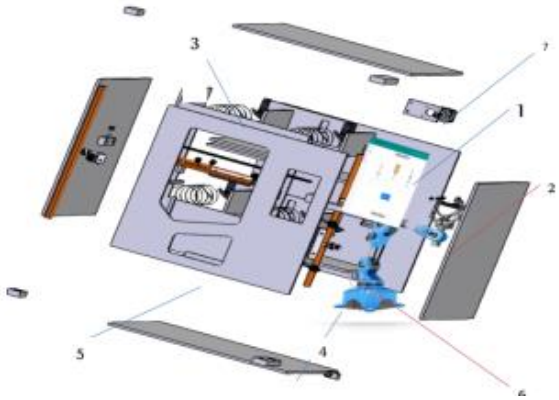


ET/UM/2024/4672

****

አመልካች ቢምረው ወዳጇ መንጋው አጭር ይዘቱ ከታች ለተመለከተው አነስተኛ ፈጠራ የግልጋሎት ሞዴል የምስክር ወረቀት እንዲሰጣቸው የጠየቁ በመሆኑ ይህ አነስተኛ ፈጠራ የእኔ ነው ወይም ከዚህ በፊት በኢትዮጵያ ውስጥ ጥቅም ላይ ውሏል ባይ ካለ ይህ ማስታወቂያ በጋዜጣ ከወጣበት ቀን ጀምሮ ባሉት ስልሳ (60) ቀናት ውስጥ የተቃውሞ ማመልከቻውን ለኢትዮጵያ አእምሯዊ ንብረት ባለስልጣን ሊያቀርብ የሚችል መሆኑን እየገለጽን፤ በተባለው ጊዜ ውስጥ የተቃውሞ ማመልከቻውን ካላቀረበ በሕጉ መሠረት ባለስልጣን መስሪያ ቤቱ ለአመልካቹ የጥበቃ ማረጋገጫ ሠርተፊኬት የሚሰጥ መሆኑን ያሳውቃል።

አነስተኛ ፈጠራው **አውቶማቲክ መሸጫ ማሽን** ነው። ይህ ፈጠራ አውቶማቲክ መሸጫ ማሽን ((AVM) Vending Machine) ሆኖ /1/ የእቃወች መሳይ /2/ እቃወችን የሚያነሳ እጂ /3/ ሸሌፍ ሊይ የተቀመጡትን ወዮ ካርት የሚሌክ/4/ የሚንቀሳቀስ ካርት መቀበያ/5/ እቃ ማዉጫ /6/ ያለ እና አዱስ የሚገቡ እቃወችን የሚያረጋግጥ (scan)/7/ ካሜራ ሆኖ ሇ 24 ሰአት እና 7 ቀን ያሇረፍት የሸያጩሌ ኢንደስትርይ ሇማቀሊጠፍ እና የራሱ የሆነ ባትሪ ማከማቻ ስሊሇው የ መብራት መቆራረት የማያስቸግረው (invertor) የተገጠመሇት በመሆኑ፤ እንዱሁም ቀሪ፣ ገቢ እና ወጪን አስሌቶ አስተካክል ማስቀመጥ የሚችሌ ማሽን ነው።

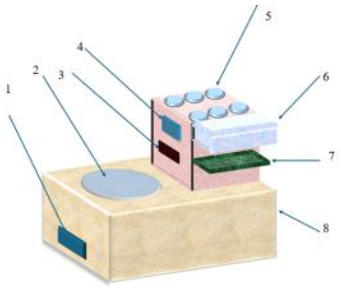


ET/UM/2024/4673

****

አመልካች Henok Amanuel Emiru አጭር ይዘቱ ከታች ለተመለከተው አነስተኛ ፈጠራ የግልጋሎት ሞዴል የምስክር ወረቀት እንዲሰጣቸው የጠየቁ በመሆኑ ይህ አነስተኛ ፈጠራ የእኔ ነው ወይም ከዚህ በፊት በኢትዮጵያ ውስጥ ጥቅም ላይ ውሏል ባይ ካለ ይህ ማስታወቂያ በጋዜጣ ከወጣበት ቀን ጀምሮ ባሉት ስልሳ (60) ቀናት ውስጥ የተቃውሞ ማመልከቻውን ለኢትዮጵያ አእምሯዊ ንብረት ባለስልጣን ሊያቀርብ የሚችል መሆኑን እየገለጽን፤ በተባለው ጊዜ ውስጥ የተቃውሞ ማመልከቻውን ካላቀረበ በሕጉ መሠረት ባለስልጣን መስሪያ ቤቱ ለአመልካቹ የጥበቃ ማረጋገጫ ሠርተፊኬት የሚሰጥ መሆኑን ያሳውቃል።

The minor invention is **Auto Cuisine Hub.** The AutoC uisine Hub is a revolutionary, portable, multifunctional device designed to automate complex cooking processes and provide additional services such as steaming coffee and tea. Equipped with cutting-edge technologies, it integrates QR code-based phone connectivity, enabling users to order food and process payments via Telebirr or its proprietary software. The device is portable with a reasonable battery backup, capable of running continuously for three hour, making it suitable for private homes, hotels, and rural or urban development corridors. This invention solves critical challenges in modern cooking appliances by delivering unprecedented convenience, efficiency, and versatility.

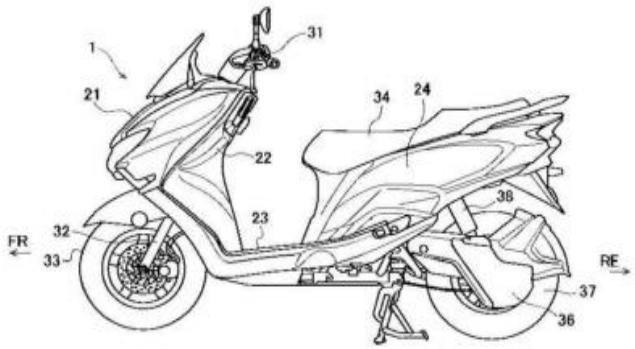


ET/UM/2024/4674

****

አመልካች በረከት ኪታባ መጨሳ አጭር ይዘቱ ከታች ለተመለከተው አነስተኛ ፈጠራ የግልጋሎት ሞዴል የምስክር ወረቀት እንዲሰጣቸው የጠየቁ በመሆኑ ይህ አነስተኛ ፈጠራ የእኔ ነው ወይም ከዚህ በፊት በኢትዮጵያ ውስጥ ጥቅም ላይ ውሏል ባይ ካለ ይህ ማስታወቂያ በጋዜጣ ከወጣበት ቀን ጀምሮ ባሉት ስልሳ (60) ቀናት ውስጥ የተቃውሞ ማመልከቻውን ለኢትዮጵያ አእምሯዊ ንብረት ባለስልጣን ሊያቀርብ የሚችል መሆኑን እየገለጽን፤ በተባለው ጊዜ ውስጥ የተቃውሞ ማመልከቻውን ካላቀረበ በሕጉ መሠረት ባለስልጣን መስሪያ ቤቱ ለአመልካቹ የጥበቃ ማረጋገጫ ሠርተፊኬት የሚሰጥ መሆኑን ያሳውቃል።

The minor invention is **Replacing Metal parts of the E-Bike with fiber glass.** Metal Processing is very expensive especially in developing countries. The reason for not manufacturing e-bike in Ethiopia is that processing metal requires both high technology and a lot of power. As the demand for lightweight, durable, and sustainable materials in the electric bicycle (E-bike) industry continues to rise, the exploration of fiberglass as a viable alternative to traditional metal components has gained significant attention. This invention is replacing metal parts in E-bike with fiberglass composites, focusing on factors such as weight reduction, strength-to-weight ratios, corrosion resistance, and environmental impact. Results indicate that fiberglass not only meets the mechanical demands of various structural components but also contributes to enhanced energy efficiency through weight savings. Moreover, the environmental footprint of fiberglass production and disposal is assessed, highlighting its potential for recycling and sustainable practices in the E-bike manufacturing sector. This invention concludes that the integration of fiberglass into E-bike design presents a promising path toward innovation in lightweight vehicles while addressing ecological considerations, positioning it as a competitive alternative to existing metal components.

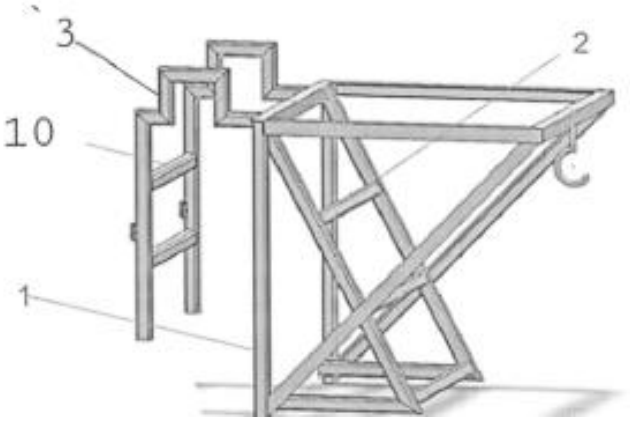


ET/UM/2024/4675

****

አመልካች ጎይቶኦም ገ/ዮሐንስ ሐድጉ አጭር ይዘቱ ከታች ለተመለከተው አነስተኛ ፈጠራ የግልጋሎት ሞዴል የምስክር ወረቀት እንዲሰጣቸው የጠየቁ በመሆኑ ይህ አነስተኛ ፈጠራ የእኔ ነው ወይም ከዚህ በፊት በኢትዮጵያ ውስጥ ጥቅም ላይ ውሏል ባይ ካለ ይህ ማስታወቂያ በጋዜጣ ከወጣበት ቀን ጀምሮ ባሉት ስልሳ (60) ቀናት ውስጥ የተቃውሞ ማመልከቻውን ለኢትዮጵያ አእምሯዊ ንብረት ባለስልጣን ሊያቀርብ የሚችል መሆኑን እየገለጽን፤ በተባለው ጊዜ ውስጥ የተቃውሞ ማመልከቻውን ካላቀረበ በሕጉ መሠረት ባለስልጣን መስሪያ ቤቱ ለአመልካቹ የጥበቃ ማረጋገጫ ሠርተፊኬት የሚሰጥ መሆኑን ያሳውቃል።

አነስተኛ ፈጠራው ከሕንጻ ውስጥ በአደጋ ጊዜ መውጫ ፑሊ ነው። ይህ ፈጠራ ከሕንጻ ውስጥ በአደጋ ጊዜ መውጫ ፑሊ ሆኖ /1/ ክብደት ተሸካሚ ብረት /2/መውረጃ መሰላል /3/ ግድግዳ ላይ ተሰኪ ብረት /4/ መንጠቆ /5/ፑሊ /6/ ፍጥነት መቆጣጠሪያ /7/ ሰውን አቃፊ ቀበቶ /8/7ምድ /9/ ፊርሞ /10/ መውጫ መሰላል የያዘ ሆኖ ሰዎች ከሕንጻ ውስጥ በተፈጥሮና በሰው ሰራሽ አደጋ ጊዜ በፍጥነት እራሳቸውንና ሌሎችንም ከአደጋ እንዲያድኑ ታስቦ የተሰራና በአስፈለገ ጊዜ ብቻ እንድንጠቀም ታጥፎ የሚቀመጥ ሆኖ የተሰራ ነው.

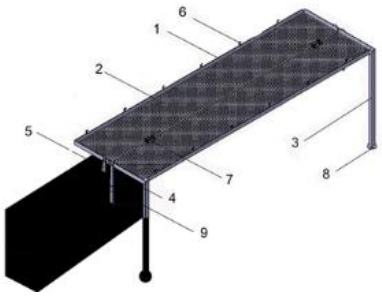


ET/UM/2024/4676

****

አመልካች ጎይቶኦም ገ/ዮሐንስ ሐድጉ አጭር ይዘቱ ከታች ለተመለከተው አነስተኛ ፈጠራ የግልጋሎት ሞዴል የምስክር ወረቀት እንዲሰጣቸው የጠየቁ በመሆኑ ይህ አነስተኛ ፈጠራ የእኔ ነው ወይም ከዚህ በፊት በኢትዮጵያ ውስጥ ጥቅም ላይ ውሏል ባይ ካለ ይህ ማስታወቂያ በጋዜጣ ከወጣበት ቀን ጀምሮ ባሉት ስልሳ (60) ቀናት ውስጥ የተቃውሞ ማመልከቻውን ለኢትዮጵያ አእምሯዊ ንብረት ባለስልጣን ሊያቀርብ የሚችል መሆኑን እየገለጽን፤ በተባለው ጊዜ ውስጥ የተቃውሞ ማመልከቻውን ካላቀረበ በሕጉ መሠረት ባለስልጣን መስሪያ ቤቱ ለአመልካቹ የጥበቃ ማረጋገጫ ሠርተፊኬት የሚሰጥ መሆኑን ያሳውቃል።

አነስተኛ ፈጠራው ተጣጣፊ እና ተሰኪ እህል ማስጫ ነው። ይህ ፈጠራ ተጣጣፊና ተሰኪ ስጥ ማስጫ ሆኖ/1/ ብረት እግር /2/ ስጡን አቃፊ አንጉላሬ ብረት /3/ ወንፊት ሽቦ /4/ ስጡን መሸፈኛ ዝርዝር ጨርቅ /5/ ማጠፊያ /6/ ግድግዳ ላይ ታሳሪ አቃፊ ፌርሞ /7/ ሰጡን መሸፈኛን ጨርቅን መወጠሪያ መንጠቆን የያዘ ሆኖ የሚሰጡቱን ስጦች በአጭር ጊዜ ከላይ ጸሃይ ከታች ንፋስ በማግኘት እንዲደርቁና ከወለል ጋር ንኪኪ እንዳይኖራቸው የሚያስችል ነው

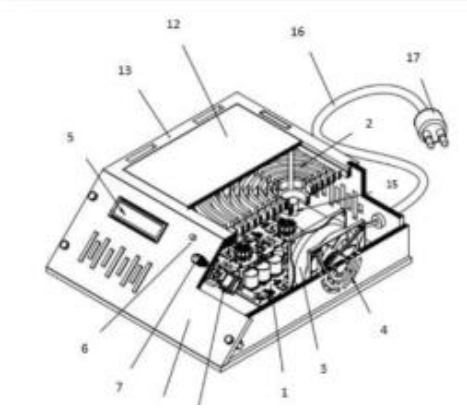


ET/UM/2024/4677

****

አመልካች ማዕረግ ማረልኝ አጭር ይዘቱ ከታች ለተመለከተው አነስተኛ ፈጠራ የግልጋሎት ሞዴል የምስክር ወረቀት እንዲሰጣቸው የጠየቁ በመሆኑ ይህ አነስተኛ ፈጠራ የእኔ ነው ወይም ከዚህ በፊት በኢትዮጵያ ውስጥ ጥቅም ላይ ውሏል ባይ ካለ ይህ ማስታወቂያ በጋዜጣ ከወጣበት ቀን ጀምሮ ባሉት ስልሳ (60) ቀናት ውስጥ የተቃውሞ ማመልከቻውን ለኢትዮጵያ አእምሯዊ ንብረት ባለስልጣን ሊያቀርብ የሚችል መሆኑን እየገለጽን፤ በተባለው ጊዜ ውስጥ የተቃውሞ ማመልከቻውን ካላቀረበ በሕጉ መሠረት ባለስልጣን መስሪያ ቤቱ ለአመልካቹ የጥበቃ ማረጋገጫ ሠርተፊኬት የሚሰጥ መሆኑን ያሳውቃል።

አነስተኛ ፈጠራው ኢንዳክሽን የኤሌክትሪክ ምድጃ ነው። ይህ ፈጠራ ኢንዳክሽን ምድጃ (Stove) ሆኖ የራሱ የሆነ የሀይል መቀየሪያ የኤሌክትሪክ ሰርኪውት ቦርድ፤ የማግኒጢሳዊ ሀይል (Magnetic Field) የሚለቅ መዳብ ጥቅል ሽቦ (Inductor Coil) /2/፤ የሙቀት ማስወገጃ ፋን (Ventilator Fan) /3/፤ የማብሰያ ሙቀት መጠን መቆጣጠርያ (Pot) /7/፤ የሙቀት መጠን ማሳያ ዲስፒለይ /5/፤ የሀይል ማመልከቻ ትንሽ መብራት (Led) /6/፤ የምድጃ ሀይል ማብሪያና ማጥፊያ (Switch) /8/ እንዲሁም ሙቀትን የሚቋቋም መስታውት (Tempered Glass)ን /12/ የያዘ ሲሆን ከተለመደው ሀገራችን ውስጥ ለማብሰያነት ከምንጠቀምባቸው የኤሌክትሪክ ምድጃ (Electric Stove) በ 20% የኤሌክትሪክ ፍጆታን የሚቀንስ፤ የምግብ ማብሰያውን ሙቀት መጠን በቀላሉ ለመቆጣጠር እና ለማሳየት የሚያስችል በጣም ፈጣን የሆነ ምግብን ለማብሰል ምቹ የሆነ እንዲሁም በቀላሉ ለማጽዳት እና ለማንቀሳቀስ የሚች ከዚህም በተጨማሪ ተጠቃሚው ላይ የንዝረት ሆነ ምንም አይነት አደጋ የማያስከትል የምግብ ማብሰያ ምድጃ (Stove) ነው።

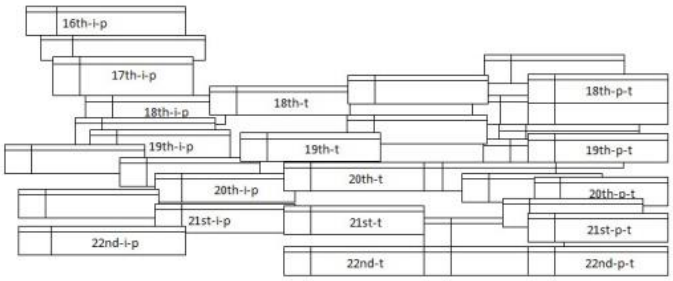


ET/UM/2024/4678

****

አመልካች Yohannes Abraham Gebretsadkan አጭር ይዘቱ ከታች ለተመለከተው አነስተኛ ፈጠራ የግልጋሎት ሞዴል የምስክር ወረቀት እንዲሰጣቸው የጠየቁ በመሆኑ ይህ አነስተኛ ፈጠራ የእኔ ነው ወይም ከዚህ በፊት በኢትዮጵያ ውስጥ ጥቅም ላይ ውሏል ባይ ካለ ይህ ማስታወቂያ በጋዜጣ ከወጣበት ቀን ጀምሮ ባሉት ስልሳ (60) ቀናት ውስጥ የተቃውሞ ማመልከቻውን ለኢትዮጵያ አእምሯዊ ንብረት ባለስልጣን ሊያቀርብ የሚችል መሆኑን እየገለጽን፤ በተባለው ጊዜ ውስጥ የተቃውሞ ማመልከቻውን ካላቀረበ በሕጉ መሠረት ባለስልጣን መስሪያ ቤቱ ለአመልካቹ የጥበቃ ማረጋገጫ ሠርተፊኬት የሚሰጥ መሆኑን ያሳውቃል።

The minor invention is **Invention's and Innovation's Potential Enhancer.** This Invention is a Invention`s an Innovation`s potential enhancer which has world inventions and innovations timeline and application class based imagination pointer, paper simulator, tracing extractor and functional prototype. With vertical timeline based heading to different innovations and inventions on different times of history till now and with future sighting. And horizontal classification of previous, recent and future inventions and innovations by their application area and purpose ful filing to unlock and enhance creative, inventive and innovative potential.

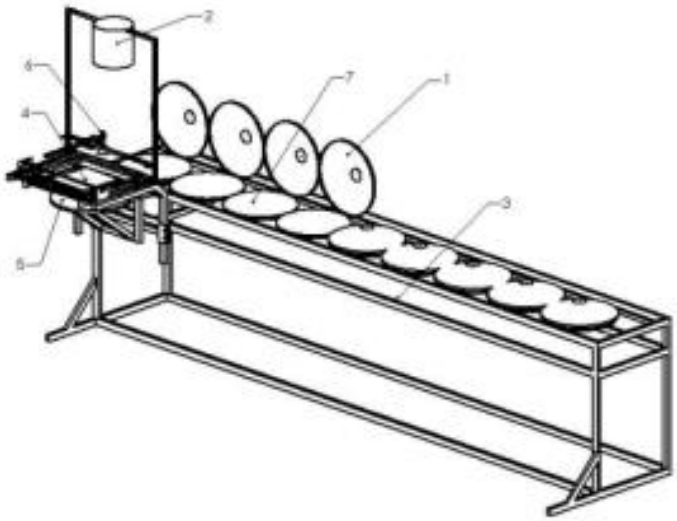


ET/UM/2024/4679

****

አመልካች Berhan Bekele Asfaw አጭር ይዘቱ ከታች ለተመለከተው አነስተኛ ፈጠራ የግልጋሎት ሞዴል የምስክር ወረቀት እንዲሰጣቸው የጠየቁ በመሆኑ ይህ አነስተኛ ፈጠራ የእኔ ነው ወይም ከዚህ በፊት በኢትዮጵያ ውስጥ ጥቅም ላይ ውሏል ባይ ካለ ይህ ማስታወቂያ በጋዜጣ ከወጣበት ቀን ጀምሮ ባሉት ስልሳ (60) ቀናት ውስጥ የተቃውሞ ማመልከቻውን ለኢትዮጵያ አእምሯዊ ንብረት ባለስልጣን ሊያቀርብ የሚችል መሆኑን እየገለጽን፤ በተባለው ጊዜ ውስጥ የተቃውሞ ማመልከቻውን ካላቀረበ በሕጉ መሠረት ባለስልጣን መስሪያ ቤቱ ለአመልካቹ የጥበቃ ማረጋገጫ ሠርተፊኬት የሚሰጥ መሆኑን ያሳውቃል።

The minor invention is **Automatic Injera Making Machine.** According to the invention our cultural staple food ‘injera’ is made with horizontally arranged griddles(mitad), equipped with heating element with the coordinated action of numerically controlled actuators by applying already prepared batter and taking out the baked injera and placing it on the receiving end. Thus needing human operator only for refilling batter and removing the baked injera when the receiving end is full.



ET/UM/2024/4680

****

አመልካች ጫኬቦ መለሰ አጭር ይዘቱ ከታች ለተመለከተው አነስተኛ ፈጠራ የግልጋሎት ሞዴል የምስክር ወረቀት እንዲሰጣቸው የጠየቁ በመሆኑ ይህ አነስተኛ ፈጠራ የእኔ ነው ወይም ከዚህ በፊት በኢትዮጵያ ውስጥ ጥቅም ላይ ውሏል ባይ ካለ ይህ ማስታወቂያ በጋዜጣ ከወጣበት ቀን ጀምሮ ባሉት ስልሳ (60) ቀናት ውስጥ የተቃውሞ ማመልከቻውን ለኢትዮጵያ አእምሯዊ ንብረት ባለስልጣን ሊያቀርብ የሚችል መሆኑን እየገለጽን፤ በተባለው ጊዜ ውስጥ የተቃውሞ ማመልከቻውን ካላቀረበ በሕጉ መሠረት ባለስልጣን መስሪያ ቤቱ ለአመልካቹ የጥበቃ ማረጋገጫ ሠርተፊኬት የሚሰጥ መሆኑን ያሳውቃል።

አነስተኛ ፈጠራው **የቤት አውቶሞቢል** ነው። ይህ ፈጠራ ስራ የቤት አውቶ ሞቢል ከወዳደቁ የሞተር ሳይክልና የመኪና እስፔር ፓርቶችን በመጠቀም የተሰራ ሲሆን በዋናነት የሊፋን ሞተር ሳይክል ኢንጂን ታክሎበት የተሰራ ነው።

ET/UM/2024/4681

****

አመልካች **ተሊሌ መኮንን ባልቻ** አጭር ይዘቱ ከታች ለተመለከተው አነስተኛ ፈጠራ የግልጋሎት ሞዴል የምስክር ወረቀት እንዲሰጣቸው የጠየቁ በመሆኑ ይህ አነስተኛ ፈጠራ የእኔ ነው ወይም ከዚህ በፊት በኢትዮጵያ ውስጥ ጥቅም ላይ ውሏል ባይ ካለ ይህ ማስታወቂያ በጋዜጣ ከወጣበት ቀን ጀምሮ ባሉት ስልሳ (60) ቀናት ውስጥ የተቃውሞ ማመልከቻውን ለኢትዮጵያ አእምሯዊ ንብረት ባለስልጣን ሊያቀርብ የሚችል መሆኑን እየገለጽን፤ በተባለው ጊዜ ውስጥ የተቃውሞ ማመልከቻውን ካላቀረበ በሕጉ መሠረት ባለስልጣን መስሪያ ቤቱ ለአመልካቹ የጥበቃ ማረጋገጫ ሠርተፊኬት የሚሰጥ መሆኑን ያሳውቃል።

አነስተኛ ፈጠራው **በንፋስ ግፊት የሚሰራ ምድጃ** ነው። ይህ ፈጠራ ከተለያዩ የወዳደቁ ቁሳቁሶች የሚዘጋጅ በንፋስ ግፊት የሚሰራ ምድጃ ሲሆን በዋናነት ከትቦላሬ የብረት ቁርጥራጭ፣ የሃይላንድ ውሃ እቃ፣ ውሃ፣ ቤንዚን፣ ንፋስ መግፊያ፣ ንፋስ ማስተላለፊያ ቱቦ ቁሳቁሶችን በማቀናጀትና በመገጣጠም የሚሰራ ሲሆን፤ የትኛውንም አይነት በእሳት ምድጃ ሊሰሩ የሚችሉ ነገሮችን ሁሉ በእሳት ምድጃ በሚሰሩበት ፍጥነት ልክ ማብሰል የሚችል በንፋስ ግፊት የሚሰራ ምድጃ ነው።

ET/UM/2024/4683

****

አመልካች **አህመድ ጀማል** አጭር ይዘቱ ከታች ለተመለከተው አነስተኛ ፈጠራ የግልጋሎት ሞዴል የምስክር ወረቀት እንዲሰጣቸው የጠየቁ በመሆኑ ይህ አነስተኛ ፈጠራ የእኔ ነው ወይም ከዚህ በፊት በኢትዮጵያ ውስጥ ጥቅም ላይ ውሏል ባይ ካለ ይህ ማስታወቂያ በጋዜጣ ከወጣበት ቀን ጀምሮ ባሉት ስልሳ (60) ቀናት ውስጥ የተቃውሞ ማመልከቻውን ለኢትዮጵያ አእምሯዊ ንብረት ባለስልጣን ሊያቀርብ የሚችል መሆኑን እየገለጽን፤ በተባለው ጊዜ ውስጥ የተቃውሞ ማመልከቻውን ካላቀረበ በሕጉ መሠረት ባለስልጣን መስሪያ ቤቱ ለአመልካቹ የጥበቃ ማረጋገጫ ሠርተፊኬት የሚሰጥ መሆኑን ያሳውቃል።

አነስተኛ ፈጠራው በቀላሉ በቤት ውስጥ የሚዘጋጅ የፀረ-ተባይ ማጥፊያ ነው። ይህ ፈጠራ በቀላሉ በቤታችን በሚገኙ ቁሳቁሶች የሚዘጋጅ ሲሆን በዋናነት በአትክልት ዘይት፣ ፈሳሽ ሳሙና፣ ጋዝ በትንባሆ ቅጠል እና ዝንጅብል ድብልቅ የሚሰራ ሲሆን ሁሉንም በተመጠኑ ይዘቶች በማዋሀድ ከተዋሀዱ ከ5-10 ሰዓታት በኃላ በተባዮች ላይ በመርጨት የምናጠፋበት መንገድ ነው፡፡

ET/UM/2024/4684

****

አመልካች በሀሩ አህመደል ነጋሽ አጭር ይዘቱ ከታች ለተመለከተው አነስተኛ ፈጠራ የግልጋሎት ሞዴል የምስክር ወረቀት እንዲሰጣቸው የጠየቁ በመሆኑ ይህ አነስተኛ ፈጠራ የእኔ ነው ወይም ከዚህ በፊት በኢትዮጵያ ውስጥ ጥቅም ላይ ውሏል ባይ ካለ ይህ ማስታወቂያ በጋዜጣ ከወጣበት ቀን ጀምሮ ባሉት ስልሳ (60) ቀናት ውስጥ የተቃውሞ ማመልከቻውን ለኢትዮጵያ አእምሯዊ ንብረት ባለስልጣን ሊያቀርብ የሚችል መሆኑን እየገለጽን፤ በተባለው ጊዜ ውስጥ የተቃውሞ ማመልከቻውን ካላቀረበ በሕጉ መሠረት ባለስልጣን መስሪያ ቤቱ ለአመልካቹ የጥበቃ ማረጋገጫ ሠርተፊኬት የሚሰጥ መሆኑን ያሳውቃል።

አነስተኛ ፈጠራው የጫጩት ማሞቂያ ምድጃ ነው። የጫጩት ማሞቂያ ምድጃ ሆኖ በዋናነት /ሀ/ ሰልባቲዮ (በእንጨት፣ በከሰል ወይም በቆሮቆንዳ)፣ /ለ/ ጪስ ማውጫ (አላስፈላጊ ጪስ ማስወገጃ)፣ /ሐ/ የሰልባቲዮ እግር (ሰልባቲዮውን ከፍ አድርጎ መሸከም የሚችል ብረት እና /መ/ እግሮቹ ላይ መሰኪያ እንጨት (ጫጩቶቹን እሳት እንዳያቃጥላቸው መከላከያ) የያዘ ነው፡፡



ET/UM/2024/4685

****

አመልካች ቤዛ አትሴቢ ዘርጋ አጭር ይዘቱ ከታች ለተመለከተው አነስተኛ ፈጠራ የግልጋሎት ሞዴል የምስክር ወረቀት እንዲሰጣቸው የጠየቁ በመሆኑ ይህ አነስተኛ ፈጠራ የእኔ ነው ወይም ከዚህ በፊት በኢትዮጵያ ውስጥ ጥቅም ላይ ውሏል ባይ ካለ ይህ ማስታወቂያ በጋዜጣ ከወጣበት ቀን ጀምሮ ባሉት ስልሳ (60) ቀናት ውስጥ የተቃውሞ ማመልከቻውን ለኢትዮጵያ አእምሯዊ ንብረት ባለስልጣን ሊያቀርብ የሚችል መሆኑን እየገለጽን፤ በተባለው ጊዜ ውስጥ የተቃውሞ ማመልከቻውን ካላቀረበ በሕጉ መሠረት ባለስልጣን መስሪያ ቤቱ ለአመልካቹ የጥበቃ ማረጋገጫ ሠርተፊኬት የሚሰጥ መሆኑን ያሳውቃል።

አነስተኛ ፈጠራው **በወዳደቁ ፕላስቲኮች እና በእጽዋት ቅጠል የሚዘጋጅ ነዳጅን ተክቶ የሚሰራ ነዳጅ** ነው። ይህ የፈጠራ ስራ ለተሸከሪካሪ ነዳጅ እና ብርሃንን የሚሰጥ የሚያገለገል ሆኖ ከወዳደቁ ሀይላንዶች ፣ፌስታል፣ የአቡካዶ ቅጠል በጥቅቱ፣ የእንሰት ኮባው (የደረቀኮባ)፣ ውሃ በማዋሀድ በስተመጨረሻም ከአምስት ድብልቅ ላይ የወዳደቀ ማለትም ከወዳደቁ ሀይላንዶች ፣ፌስታል፣ የአቡካዶ ቅጠል በጥቅቱ ፣ የእንሰት ኮባው (የደረቀኮባ)፣ ውሃ እንደማያያዝነት የተዘጋጀውን በመጨመር የሚዘጋጅ ነዳጅን ተክቶ የሚሰራ በፈሳሽ መልክ የተዘጋጀ የተሸከርካሪ ነዳጅ እና ብርሃን የሚሰጥ ጋዝ ነው፡፡

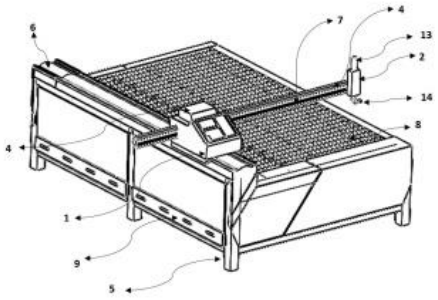
ET/UM/2024/4686

****

አመልካች Space Science and Geospatial Institute አጭር ይዘቱ ከታች ለተመለከተው አነስተኛ ፈጠራ የግልጋሎት ሞዴል የምስክር ወረቀት እንዲሰጣቸው የጠየቁ በመሆኑ ይህ አነስተኛ ፈጠራ የእኔ ነው ወይም ከዚህ በፊት በኢትዮጵያ ውስጥ ጥቅም ላይ ውሏል ባይ ካለ ይህ ማስታወቂያ በጋዜጣ ከወጣበት ቀን ጀምሮ ባሉት ስልሳ (60) ቀናት ውስጥ የተቃውሞ ማመልከቻውን ለኢትዮጵያ አእምሯዊ ንብረት ባለስልጣን ሊያቀርብ የሚችል መሆኑን እየገለጽን፤ በተባለው ጊዜ ውስጥ የተቃውሞ ማመልከቻውን ካላቀረበ በሕጉ መሠረት ባለስልጣን መስሪያ ቤቱ ለአመልካቹ የጥበቃ ማረጋገጫ ሠርተፊኬት የሚሰጥ መሆኑን ያሳውቃል።

The invention is **CNC Plasma and Acetylene Cutting Machine.** This invention CNC plasma and acetylene cutting machine which comprises of CNC Controller/1/, THC controller/2/, Torch/3/, X- axis gantry /4/, Frame/5/, Y-axis gantry/6/, Rack gear

drive /7/, Workpiece cutting table/8/, Fume exhaust /9/, THC driver /10/, Display screen /11/, keypad selector/12/, Z drive motor /13/, Torch clamp /14/, Plasma Power source /15/, Air/gas supply system /16/, Earth clamp /17/,Cutting gun /18/, Gas pipe /19/. The invention presented here is a CNC (Computer Numerical Control) cutting machine designed to perform precision cutting operations using both plasma and acetylene technologies. This dual-function cutting machine integrates advanced CNC control systems to enable automated, high-accuracy cutting of various materials, including metals of varying thickness and hardness.

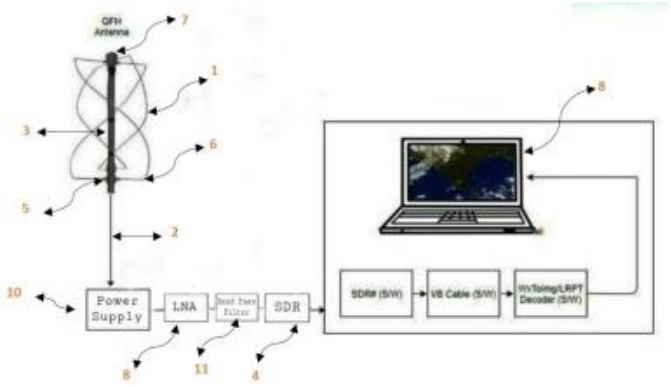


ET/UM/2024/4687

****

አመልካች Space Science and Geospatial Institute አጭር ይዘቱ ከታች ለተመለከተው አነስተኛ ፈጠራ የግልጋሎት ሞዴል የምስክር ወረቀት እንዲሰጣቸው የጠየቁ በመሆኑ ይህ አነስተኛ ፈጠራ የእኔ ነው ወይም ከዚህ በፊት በኢትዮጵያ ውስጥ ጥቅም ላይ ውሏል ባይ ካለ ይህ ማስታወቂያ በጋዜጣ ከወጣበት ቀን ጀምሮ ባሉት ስልሳ (60) ቀናት ውስጥ የተቃውሞ ማመልከቻውን ለኢትዮጵያ አእምሯዊ ንብረት ባለስልጣን ሊያቀርብ የሚችል መሆኑን እየገለጽን፤ በተባለው ጊዜ ውስጥ የተቃውሞ ማመልከቻውን ካላቀረበ በሕጉ መሠረት ባለስልጣን መስሪያ ቤቱ ለአመልካቹ የጥበቃ ማረጋገጫ ሠርተፊኬት የሚሰጥ መሆኑን ያሳውቃል።

The invention is **Sound and Image received from Weather Satellites Instrument.** This invention Sound and Image received from weather satellites instrument which comprises of Copper Tube **/1/**, Coaxial cable **/2/**, PVC pipe **/3/**, Software define radio **/4/**, Connector **/5/**, Elbo **/6/**, Waterproofing cup **/7/**, Computer **/8/**, Low Noise Amplifier**/9/**, Power Supply**/10/** and Bandpass filter**/11/.** The invention presents SDR-based ground station using a QFH antenna designed for optimal circularly polarized signal reception at **137** MHz frequency from NOAA satellites. The system employs a Software Defined Radio (SDR) as the receiver, a Quadrifilar Helix (QFH) antenna for omnidirectional reception, and specialized decoding software to process Automatic Picture Transmission (APT) data. The configuration enhances data accuracy and reliability, integrating advanced signal filtering, noise reduction, and tracking capabilities, making it a cost-effective and adaptable solution for satellite communication and remote sensing applications.

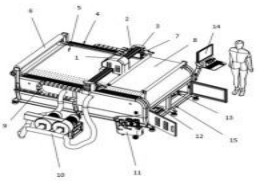


ET/UM/2024/4688

****

አመልካች ማዕረግ ማረልኝ አጭር ይዘቱ ከታች ለተመለከተው አነስተኛ ፈጠራ የግልጋሎት ሞዴል የምስክር ወረቀት እንዲሰጣቸው የጠየቁ በመሆኑ ይህ አነስተኛ ፈጠራ የእኔ ነው ወይም ከዚህ በፊት በኢትዮጵያ ውስጥ ጥቅም ላይ ውሏል ባይ ካለ ይህ ማስታወቂያ በጋዜጣ ከወጣበት ቀን ጀምሮ ባሉት ስልሳ (60) ቀናት ውስጥ የተቃውሞ ማመልከቻውን ለኢትዮጵያ አእምሯዊ ንብረት ባለስልጣን ሊያቀርብ የሚችል መሆኑን እየገለጽን፤ በተባለው ጊዜ ውስጥ የተቃውሞ ማመልከቻውን ካላቀረበ በሕጉ መሠረት ባለስልጣን መስሪያ ቤቱ ለአመልካቹ የጥበቃ ማረጋገጫ ሠርተፊኬት የሚሰጥ መሆኑን ያሳውቃል።

አነስተኛ ፈጠራው **አውቶማቲክ የጨርቅ መቆራረጫ ሲኤንሲ (CNC) ማሽን** ነው። ይህ ፈጠራ እስከ 120 የልብስ ጨርቆቸን ደራርቦ በአንድ ጊዜ መቁረጥ የሚችል፤ የአቆራረጥ ሂደቱንም ለማቀላጠፍ የኮምፒዩተር ሲስተም የተገጠምለት ሆኖ የስራ ጫናን ለመቀነስ የራሱ የሆነ የልብስ ማጓጓዣ (Conveyor Belt) /5/ ያለዉ፤ የተደራረበዉን ጨርቅ መቁረጥ የሚችል ምላጭ የተገጠመለት ክፍል /1/ ልብሱን በአቆራረጥ ሂደት ላይ እንዳይንቀሳቀስ ልብሱ ከሚቀመጥበት ጋር አጣብቆ የሚዩዝ ከፍተኛ ተቃራኒ ግፊት ያለዉ የአየር ፓምፕ /10/፤ የልብስ መሸፈኛ ፕላስቲክ /6/&/8/፤ የልብስ አቆራረጥ ሂደቱን አዉቶማቲክ ለማድረግ የሚያገለግል የኤሌኤክትሪክ ሞተር ሲስተምና /12/ የአየር አንቀሳቃሽ ሲሊንደር /7/ ሲስተም እንዲሁም አጠቃላይ የማሽኑን እንቅስቃሴ ለመቆጣጠር የምንችልበት ኮንትሮል ፓነል /14/ ያለዉ ሲሆን ከተለመደዉ ሀገራችን ዉስጥ ልብስን ለመቁረጥ ከምንጠቀምባቸዉ በእጅ ከሚሰሩ ማሽኖች 20% የነበረዉን የልብስ ብክነት መቀነስ የሚችል፤ በፈለግነዉ የልብስ ቅርጽና መጠን በአጭር ጊዜ ውስጥ መቁረጥ የሚችል፤ ከተቆረጠም በኋላ በራሱ የልብስ ማጓጓዣ አዉጥቶ የሚሰጠን በ አጠቃላይ የተከስታይል ኢንደስትሪዉን የማምረት አቅምና ትርፋማነት በሰፊዉ መጨመር የሚችል በሃገራችን ዉስጥ የተመረተ አዉቶማቲክ የጨርቅ መቁረጫ ሲኤንሲማሽን ነው።



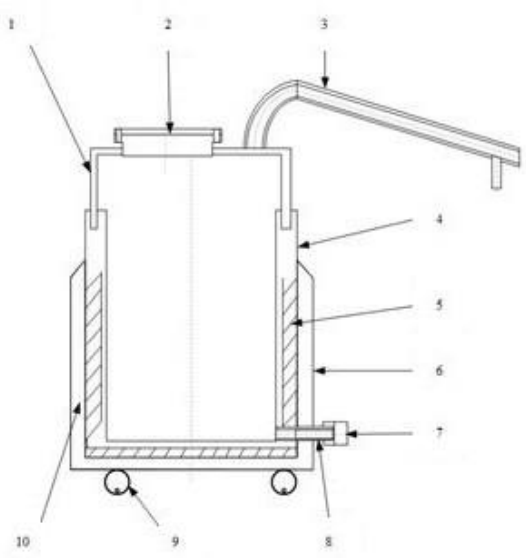
ET/UM/2024/4689

****

INID CODES: Internationally Agreed Numbers for the Identification of Bibliographic Data

INID CODES							
11	የግ.ሞ ቁጥር		45	ምዝገባ ቀን		73	አመልካች
21	ማመልከቻ ቁጥር		51	ዓለም አቀፍ ምደባ		74	ወኪል
22	ማመልከቻ ቀን		54	የፈጠራው ርዕስ		57	አብስትራክት
30	የቀደምትነት መግለጫ		72	የፈጠራው ሠራተኛ			

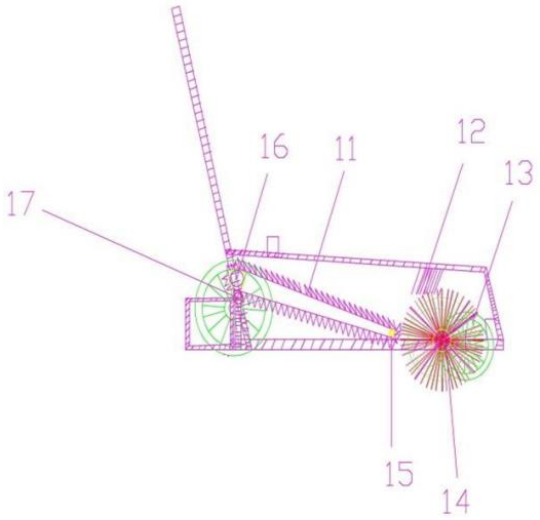
11	1172
21	ET/UM/2022/4115
22	20/09/2022 እ.ኤ.አ.
30	የማመልከቻ ቀን የቀደምትነት ቀን ነው
45	21/11/2024 እ.ኤ.አ.
51	C 12H 1/00(2006.01)
54	በኤሌክትሪክ የሚሰራ የአረቄ ማውጫ ማሽን
72	አሸናፊ አበበ፣ ወርቁ ሶሎሞን፣ ተስፋዬ ወንዳጥር፣ ምንባለ ጋሹ እና አማረ አያሌው
73	ደብረ ብርሃን ዩኒቨርሲቲ ደብረ ብርሃን ዩኒቨርሲቲ፣ ኢትዮጵያ [ET]
74	ሰይድ መሐመድ ደብረ ብርሀን ከተማ ቀበሌ 09 የቤት ቁጥር አዲስ [ET];



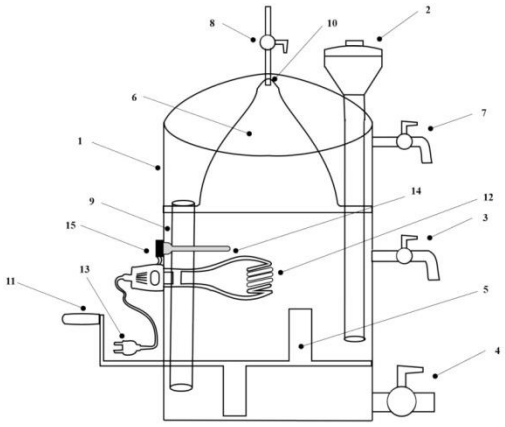
57	ይህ ፈጠራ የተሻሻለ የአረቂ ማውጫ (ማምረቻ) ማሽን ሆኖ አራት ተሸከርካሪ እግሮች /4/ አሉት። ድፍድፉን የሚይዘው የማሽኑ የውስጠኛው አካል /9/ ከሸክላ የተሰራ ጋን ሲሆን የላይኛው ዋና ክዳን /1/

	ነው። የድፍድፍ መጨመርያና ጋን ማጠቢያ /2/ ሲሆን የተነነውን አረቂ ማውረጃ ቧንቧና ማቀዝቀዣ ደግሞ በ/3/ የተመለከተው ክፍል ነው። የአረቂ ማስተላለፊያ ቧንቧው ከመቃ ነው። አረቂውን እንዲተን የሚያደርገው ሙቀት የሚመነጨው ከኤሌክትሪክ ማሞቂያ /5/ ነው። የኤሌክትሪክ ሙቀቱ ወደ ውጭ እንዳይባክን በሽክላውና በውጨኛው የብረት ሽፋን /6/ መካከል በአመድ /10/ አለው። አረቂው ወጥቶ ካለቀ በኋላ የቀረውን ተረፈ ምርት ወይም አምቡላ የሚያንጣፍፈው በስምንት ቁጥር /8/ የተመለከተው ክፍል ነው። ማንጣፈፊያው /8/ ከማይዝግ ብረት የተሰራ ሲሆን መዝጊና መክፈቻ ቫልቭ /7/ አለው።

****

11	**1173**	
21	ET/UM/2023/4217	
22	09/03/2023 እ.ኤ.አ.	
30	የማመልከቻ ቀን የቀደምትነት ቀን ነው	
45	22/11/2024 እ.ኤ.አ.	
51	**A 47L 11/36**(2006.01)	
54	**መንገድ ማጽጃ ማሽን**	
72	አቤል ደነቀ ታምሩ ለሚ ኩራ ክ/ከተማ ወረዳ 08, አዲስ አበባ ኢትዮጵያ [ET];	
73	አቤል ደነቀ ታምሩ ለሚ ኩራ ክ/ከተማ ወረዳ 08, አዲስ አበባ ኢትዮጵያ [ET];	
74		
57	ይህ ፈጠራ መንገድ ማጽጃ ማሽን ሆኖ የቆሻሻ መያዣ ሳጥን ክፍል /1/ ክብ የሆነ ተሽከርካሪ የቆሻሻ መጥርጊያ ክፍል /13/፣ የማሽኑን አካል ለመክደን የሚያገለግል መክድኛ ኮፈን /9/፣ ቆሻሻ በመጥረጊያዉ ላይ ተሽከርክሮ ተመልሶ እንዳይወጣ የሚከላከል ከፍል /12/ ቆሻሻ ማጓጓዣ ክፍል /11/፣ ከግፊ ያገኘውን ሃይል ለመጥረጊያው የሚሰጥ ጥርስ /8/፣ የያዝ ሆኖ አስፓልት መንገድ ከኋላ በኩል ባለዉ መግፊያ አማካኝነት በመግፋት የሚያጸዳ ማሽን ነዉ፡፡	

****

11	**1174**	
21	ET/UM/2023/4323	
22	08/08/2023 እ.ኤ.አ.	
30	**የማመልከቻ ቀን የቀደምትነት ቀን ነው**	
45	25/11/2024 እ.ኤ.አ.	
51	**C 12M 1/12**(2006.01)	
54	**Portable Biogas Digester with a Mixer**	
72	Dawit Ketema Teka Adama City Hangatu Kebele House No. New, [ET];	
73	Dawit Ketema Teka Adama City Hangatu Kebele House No. New, [ET];	
74		
57	This invention is a portable biogas digester designed for efficient and high-flame biogas production and it features a sealed digester **/1/**, feed inlet **/2/**, slurry valve**/3/**, cleaning valve **/4/**, mixer **/5/**, gas chamber **/6/**, gas overflow valve **/7/**, gas outlet valve **/8/**, inside slurry pipe **/9/**, gas nipple **/10/** ,mixer handle **/11/**, heater coil **/12/**, heater plug **/13/**, temperature sensor **/14/** and temperature controller **/15/** and the digester prevents the bad smell and the formation of scum inside the biogas digester.	

****

11	**128**	
21	ET/P/2014/245	
22	12/03/2014 እ.ኤ.አ.	
30	**የማመልከቻ ቀን የቀደምትነት ቀን ነው**	
45	13/11/2024 እ.ኤ.አ.	
51	**B 01F 15/02**(2006.01), **G 05D 11/13**(2006.01)	
54	DEVICES AND METHODS FOR FOOD FORTIFICATION	
72	FELIX BROOKS-CHURCH [US];	
73	PROJECT HEALTHY CHILDREN, INC, LINCOIN STREET #313, WAKEFIELD, MASSACHUSETTS 01880, [US];	
74	Lidet Abebe Tizazu and/or Mahlet Kassa Woldesenbet 6th Floor,Beza Building, Office No 604, Bole Sub-City, Woreda 03, [ET];	
57	A modular system for combining a free-flowing dry food product with a proportional	

****

11	**129**	
21	ET/P/2024/746	
22	07/05/2024 እ.ኤ.አ.	
30	**የማመልከቻ ቀን የቀደምትነት ቀን ነው**	
45	14/11/2024 እ.ኤ.አ.	

51	**H 04M 11/04**(2006.01), **H 04W 4/02**(2009.01), **G 06F 17/30**(2006.01), **G 06Q 50/26**(2012.01)	
54	Citizen Safety and Security System	
72	Honorable Commissioner General Demelash G/Michael	
73	Ethiopia Federal Police, Mexico Square Addis Ababa Ethiopia, Addis Ababa [ET]	
74		
57	This invention relates to a groundbreaking cellular application designed to revolutionize how residents interact with public safety government through reporting accidents. The application, prominent by means of its inclusivity and technical sophistication, lets in customers to upload numerous codecs of proof directly to police and emergency responders. It uniquely addresses the needs of special wishes citizens, ensuring that the generation is out there to everybody, irrespective of their bodily competencies. The application supports a wide array of file formats including, but not limited to, images (JPEG, PNG), videos (MP4, AVI), audio recordings (MP3, WAV) and text documents (PDF, DOCX). This versatility in evidence submission is crucial for providing comprehensive details about incidents, which significantly aids in the accuracy and efficiency of law enforcement responses. One of the standout features of this mobile application is its extensive suite of accessibility options, tailored to accommodate users with various disabilities.	

	The application is not only a tool for reporting accidents but also serves as a platform for enhancing civic engagement, promoting community safety, and fostering a collaborative relationship between citizens and police forces. By integrating cutting-edge technology with a focus on accessibility and security, this invention sets a new standard for public safety applications, making it an indispensable tool for modern, inclusive community policing.

****

(19) የኢትዮጵያ አእምሯዊ ንብረት ባለስልጣን Ethiopian Intellectual Property Authority

(12) **Ethiopian Patent**

ETP128B1

(11) Publication No: ET P 128 B1

(45) Publication Date: 28/10/2024

(54) Devices and methods for food fortification

(71) Applicant: Applicant: Project Healthy Children, INC [USA]

(72) Inventor: Brooks-Church[USA]

(51) IPC:

B 01F 15/02(2006.01),

G 05D 11/13(2006.01)

Examiners: Anberbir Getane &
Getachew Taffa

(57) Abstract

A modular system for combining a free-flowing dry food product with a proportional amount of vitamins and/or minerals.

20 Claims and 12 Fingers

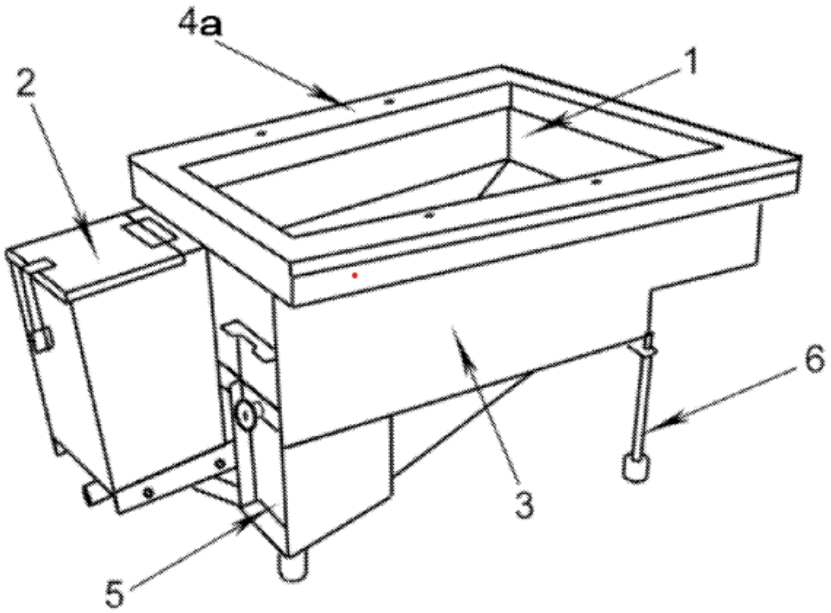


Fig. 1

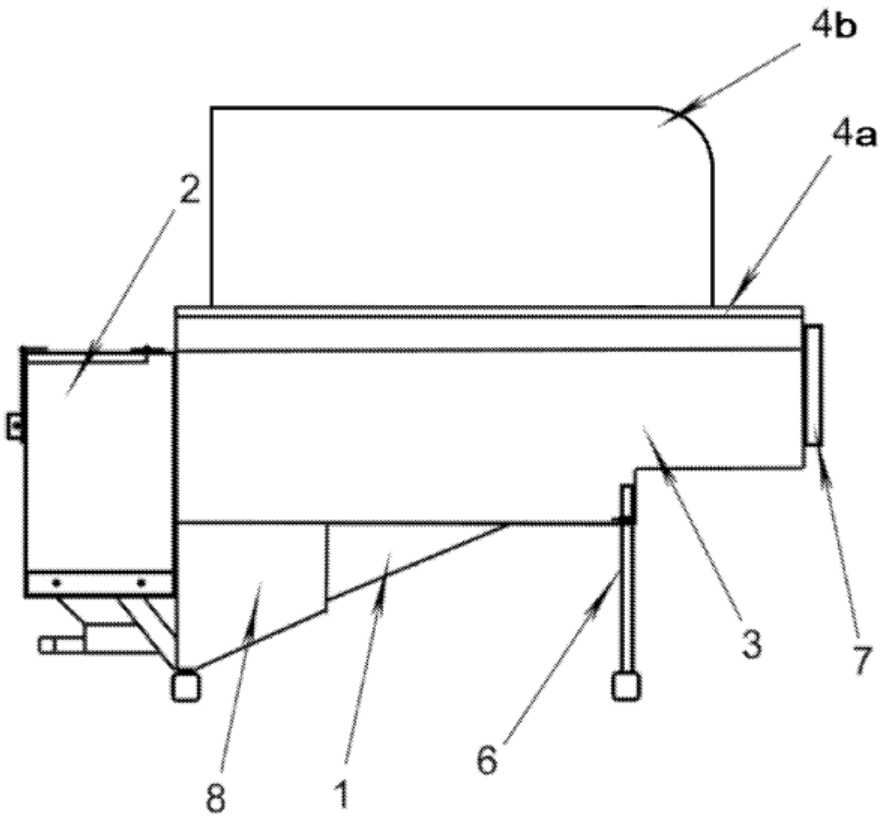


Fig. 2

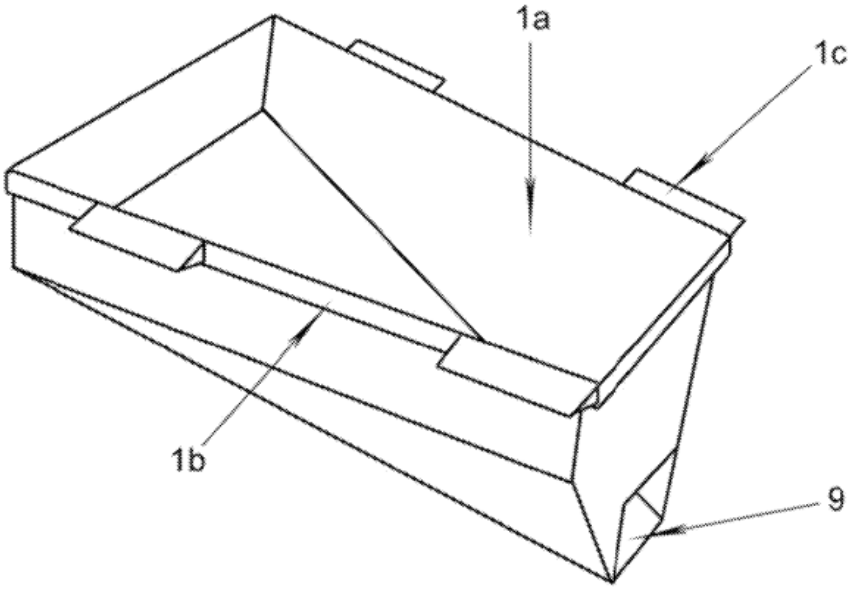


Fig. 3

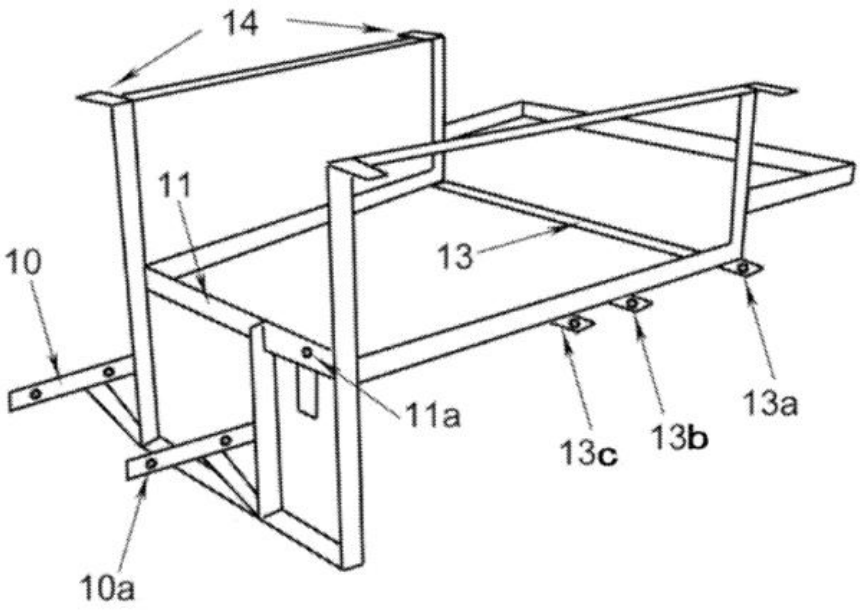


Fig. 4

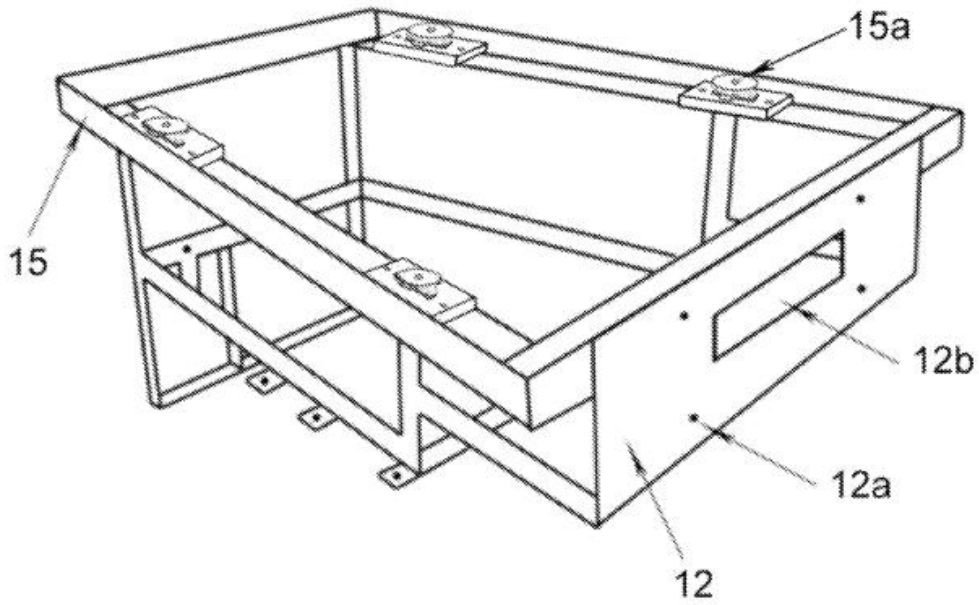


Fig. 5

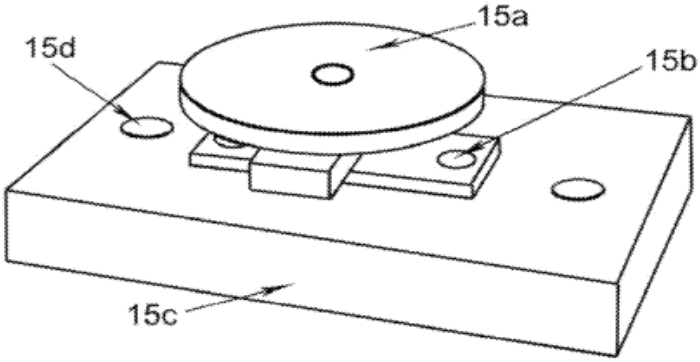


Fig. 6

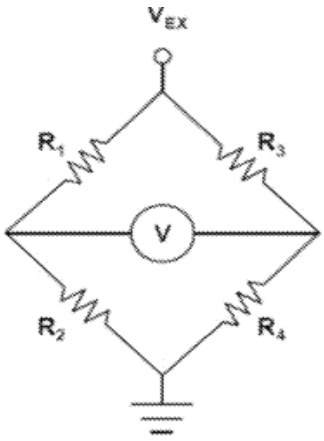


Fig. 7

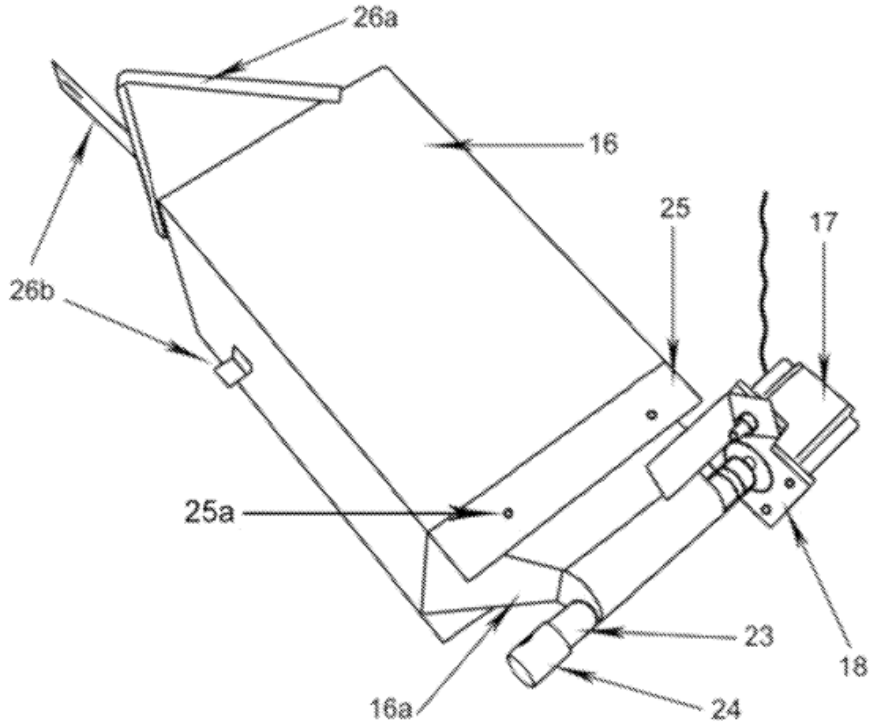


Fig. 8

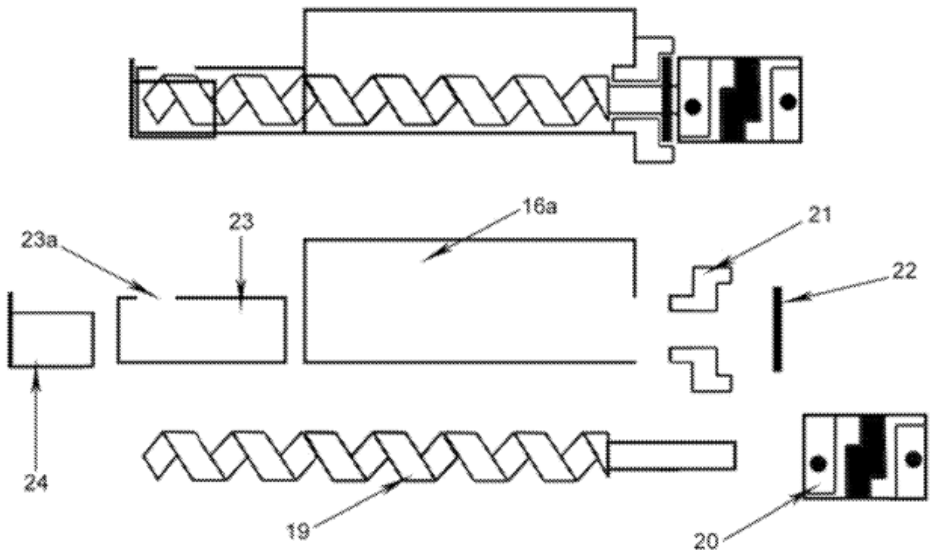


Fig. 9

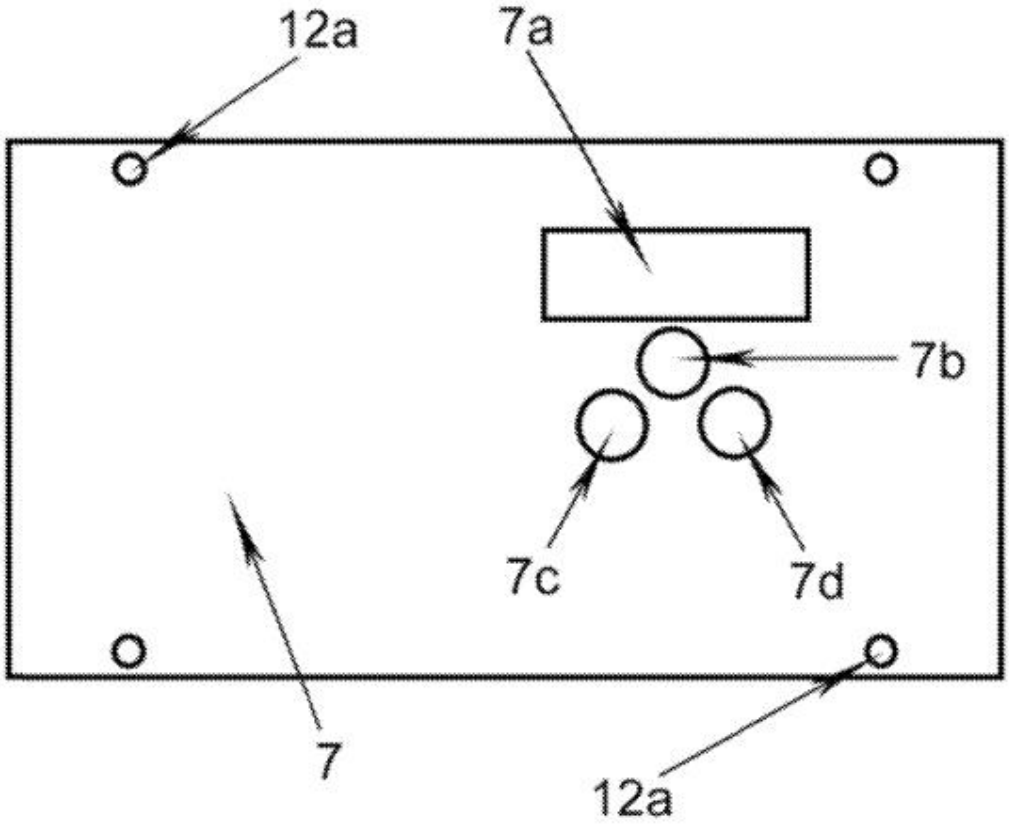


Fig. 10

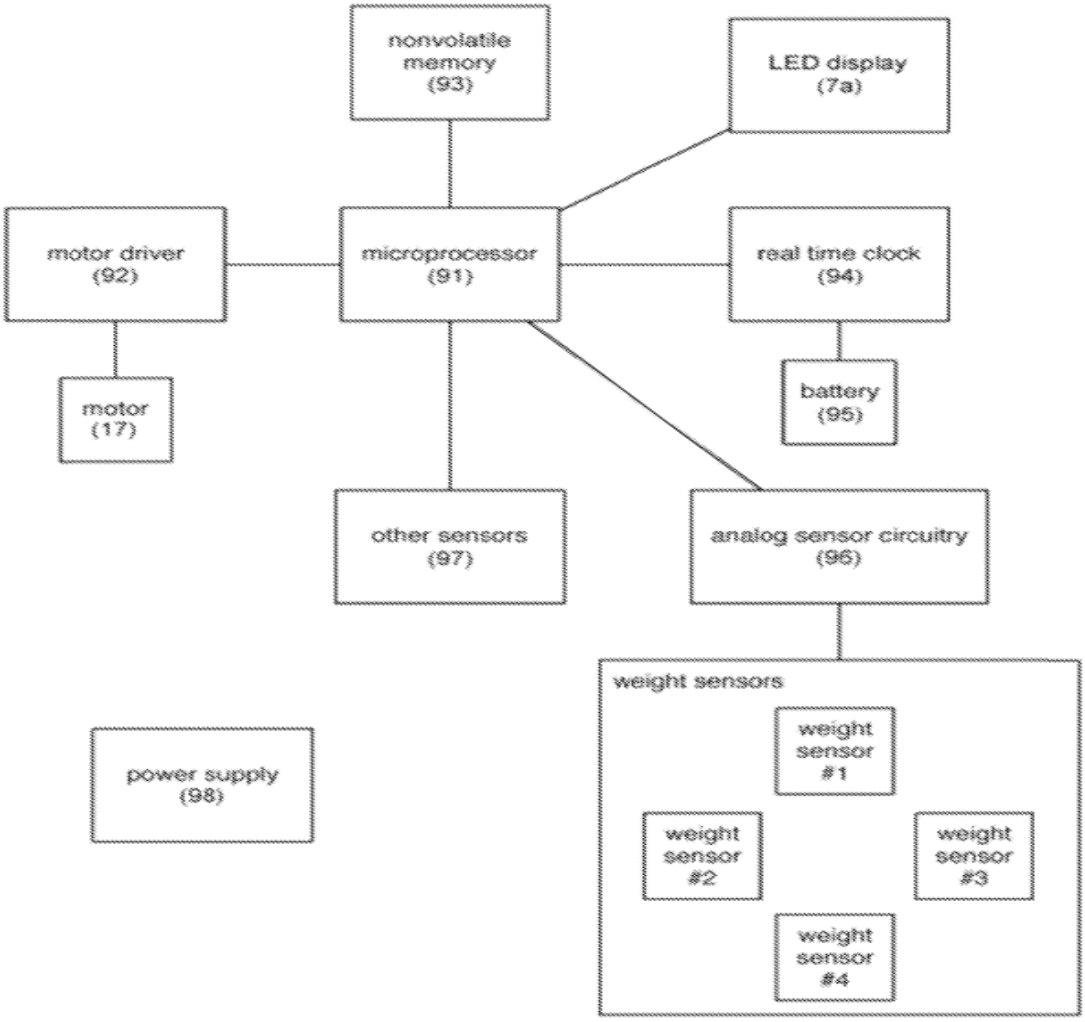

nonvolatile memory (93)
LED display (7a)
motor driver (92)
microprocessor (91)
real time clock (94)
motor (17)
battery (95)
other sensors (97)
analog sensor circuitry (96)
weight sensors
weight sensor #1
weight sensor #2
weight sensor #3
weight sensor #4
power supply (98)

Fig. 11

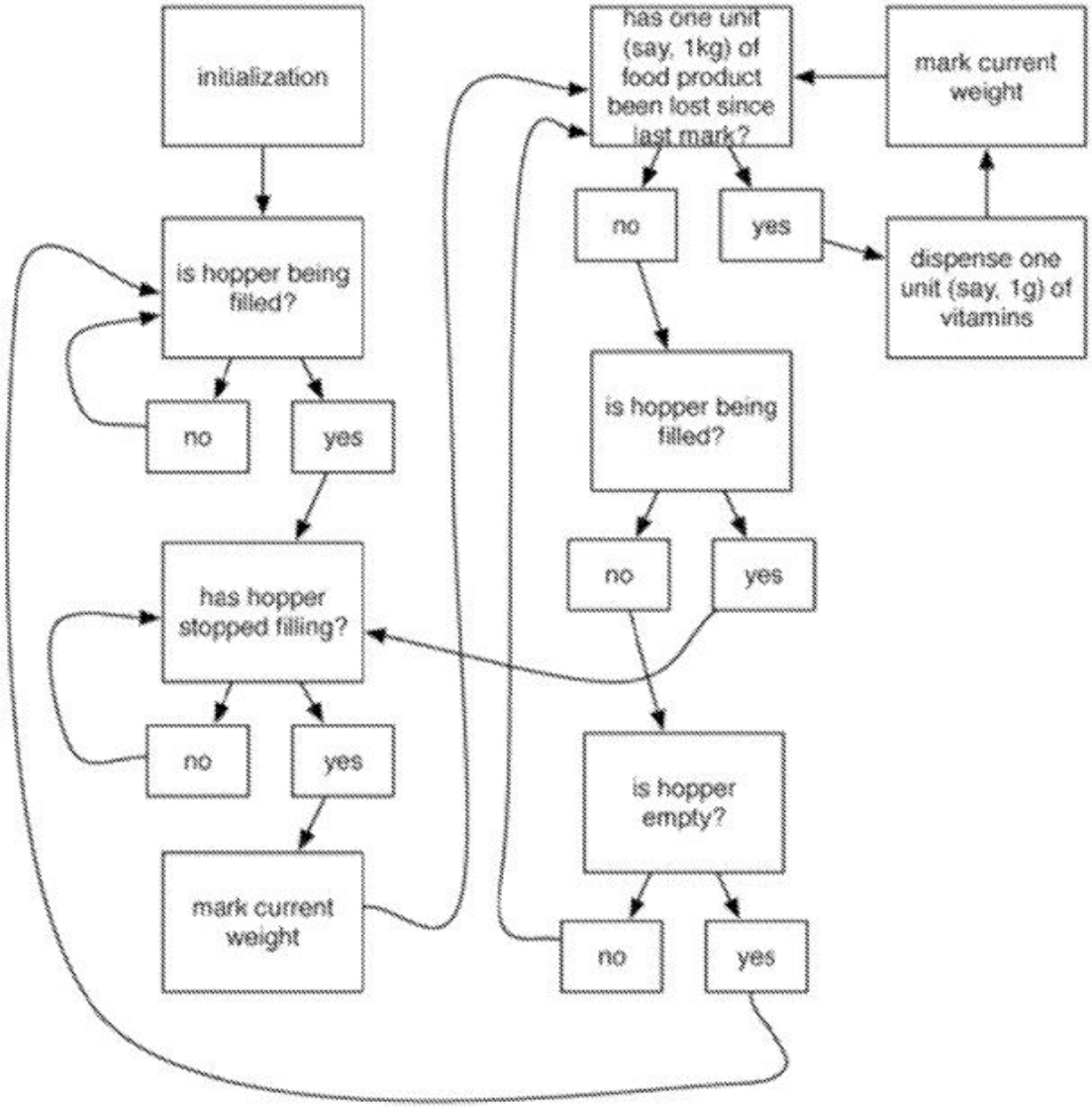

initialization
is hopper being filled?
no
yes
has hopper stopped filling?
no
yes
mark current weight
has one unit (say, 1kg) of food product been lost since last mark?
no
yes
is hopper being filled?
no
yes
is hopper empty?
no
yes
mark current weight
dispense one unit (say, 1g) of vitamins

Fig. 12

Devices and methods for food fortification

Description

DEVICES AND METHODS FOR FOOD FORTIFICATION

Cross-Reference to Related Applications

This application claims priority to and the benefit of, and incorporates herein by reference in their entireties, U.S. Provisional Patent Application No. 61/790,383, which was filed on March 15, 2013, and U.S. Provisional Patent Application No. 61/902,096, which was filed on November 8, 2013.

Technical Field

In various embodiments, the present invention relates to food processing and, more particularly, to vitamin and mineral fortification of food.

Background

Evidence from large-scale centralized fortification programs in developed countries has shown fortification of staple foods (e.g., flour, oil, sugar, salt, etc.) to be among the most cost effective and sustainable strategies for alleviating micronutrient deficiencies. This success has largely been possible due to the fact that most staple foods in developed countries are centrally processed, thereby making fortification (e.g., the addition to the staple foods of vitamins and minerals, including essential nutrients such as iron, folic acicula, zinc, iodine, vitamins A, B, and C, etc.) operationally convenient and cost effective.

In most African countries and in parts of southern Asia, however, staple foods are not centrally processed. In these regions, a. large percentage of consumers (i.e., surpassing 50% and even up to 90% in some countries) depends on mid- to small-scale milling to process staple foods. These consumers cannot be reached using the large-scale, centralized fortification model. Ironically, these consumers are also the poorest of the poor - the very ones who are most in danger of micronutrient malnutrition. In the past, some efforts have been made to fortify the food processed by mid- to small-scale millers. For example, some millers have tried to fortify their foods manually. In particular, some have tried to hand scoop essential nutrients into the foods to be processed by their mills. Such a method is, however, inherently prone to variability and human error. It is, for example, difficult to monitor the homogeneity of the added nutrients when using such a method.

Automatic /semi-automatic approaches have also been tried in mid- to small-scale mills. Such approaches have typically been volumetric in nature, however. In other words, they add a given volume of essential nutrients to a given volume of the particular food to be fortified. Unfortunately, these approaches are

generally unable to adjust the volume of essential nutrients added to account for different grain densities in the food to be fortified.

Accordingly, a need exists for improved (e.g., more accurate) devices and methods of fortifying staple foods in mid- to small-scale mills.

Summary- of the Invention

In various embodiments, the present invention is an automated system that attaches to mid- to small-scale mills and that adds to a tree-flowing dry food product, such as grain that is to be milled into flour, a proportional amount of vitamins and/or minerals. Various embodiments of the invention feature four independent but connected modules: a. weight- sensitive hopper; a nutrient dispenser; a computer module; and a frame. To use the system, a user first pours the free-flowing food product, such as a grain, into the weight-sensitive hopper. The purpose of the weight-sensitive hopper is to measure the mass of the food product contained there within. As the food product flows through an outlet of the hopper, the computer module calculates a loss-of-mass rate. Nutrients are then dispensed by the nutrient dispenser into the outflow ot "the food product in proportion to the loss-of-mass rate, thereby maintaining a specified ratio of nutrients to food product. The grinding capability of the existing mid- to small-scale mill is then employed to mix the nutrients with the food product.

The computer module controls the overall behaviour of the system, and may collect and store data on its operation. In one embodiment, the computer module and nutrient dispenser are attached externally to the frame, which houses the weight-sensitive hopper. In one particular embodiment, the entire device sits within the existing mill's hopper, accurately positioned for subsequent processing of the combined dry food product and nutrients. The device may, for example, include features that facilitate its placement within the existing mill's hopper (e.g., adjustable legs for variable hopper slopes).

In general, in one aspect, embodiments of the invention feature a gravimetric food fortification device. The device includes a frame, a shield coupled to the frame, a weight- sensitive hopper coupled to the frame for dispensing a food product into a second hopper (e.g., a sloped hopper of a hammer mill), a. nutrient dispenser coupled to the frame for dispensing nutrients into the second hopper, a. computer processor for calculating a loss -of- mass rate as the food product is dispensed from the weight-sensitive hopper and for causing the nutrient dispenser to dispense the nutrients into

the second hopper in proportion to the loss-of-mass rate, and a mounting system for adjustably mounting the frame within the second hopper.

In various embodiments, the device further includes a plurality of load sensors coupled to the frame. A plurality of vibration isolation pads may be disposed between the frame and the load sensors; in addition, the weight-sensitive hopper may include a plurality of tabs that contact the load sensors. In one embodiment, the weight-sensitive hopper further includes a chute in fluid communication with an outlet. The device may also include a gate to control an outflow rate of the food product through the outlet. Optionally, the device may further include a protective rim that covers at least a portion of an upper edge of the weight- sensitive hopper.

In certain embodiments, the nutrient dispenser, which may be located external to the weight-sensitive hopper, includes a motor, a feeds crew driven by the motor, a flexible coupling disposed between the motor and the feeds crew, and a nipple for dispensing the nutrients into the second hopper. A seal may be disposed in proximity to the flexible coupling to seal a proximal end of the feeds crew, while a nipple cap may be coupled to the nipple.

In one embodiment, the computer processor is configured to store operational data to computer memory. The computer processor may be further configured to transmit wirelessly the stored operational data to another computing device. In certain embodiments, the mounting system is configured to adjust a level of the frame. For example, the mounting system may include a plurality of adjustable legs coupled to the frame. A plurality of vibration isolation pads may be coupled to the adjustable legs. In general, in another aspect, embodiments of the invention feature a method for fortifying a food product. The method includes positioning a gravimetric food fortification device within a sloped hopper. The gravimetric food fortification device may include a frame, a shield coupled to the frame, a weight-sensitive hopper coupled to the frame for dispensing the food product into the sloped hopper, a nutrient dispenser coupled to the frame for dispensing nutrients into the sloped hopper, and a mounting system for adjustably mounting the frame within the sloped hopper. The method further includes adjusting a level of the frame through use of the mounting system, calculating a loss-of-mass rate as the food product is dispensed from the weight-sensitive hopper and into the sloped hopper, and dispensing the nutrients into the sloped hopper in

proportion to the loss-of-mass rate. In general, in yet another aspect, embodiments of the invention feature a fortified food product that is produced in accordance with such a method. These and other objects, along with advantages and features of the embodiments of the present invention herein disclosed, will become more apparent through reference to the following description, the accompanying drawings, and the claims. Furthermore, it is to be understood that the features of the various embodiments described herein are not mutually exclusive and can exist in various combinations and permutations. Brief

Description of the Drawings

In the drawings, like reference characters generally refer to the same parts throughout the different views. Also, the drawings are not necessarily to scale, emphasis instead generally being placed upon illustrating the principles of the invention. In the following description, various embodiments of the present invention are described with reference to the following drawings, in which:

Fig.1 is a schematic perspective view of a food fortification system in accordance with one embodiment of the invention:

Fig.2 is a side view of the food fortification system depicted in Fig. 1, and also shows a grain shield;

Fig. 3 is a schematic perspective view of a weight-sensitive hopper module in accordance with one embodiment of the invention;

Fig. 4 is a schematic front perspective view of a frame in accordance with one embodiment of the invention;

Fig. 5 is a schematic rear perspective view of a frame in accordance with one embodiment of the invention;

Fig. 6 is a schematic perspective view of a load cell stack in accordance with one embodiment of the invention;

Fig.7 is a diagram of a load cell Wheatstone bridge circuit configuration in accordance with one embodiment of the invention;

Fig. 8 is a schematic perspective view of a nutrient dispenser module in accordance with one embodiment of the invention;

Fig. 9 shows a schematic cutaway side view and also an exploded side view of a nutrient dispenser module in accordance with one embodiment of the invention;

Fig.10 is a schematic front view of a computer module and user interface in accordance with one embodiment of the invention;

Fig.11 is a block diagram of the computer module in accordance with one embodiment of the invention; and

Fig.12 is a flow diagram of a method for fortifying a food product in accordance with one embodiment of the invention.

Description

In broad overview, embodiments of the present invention feature a device and method for fortifying a food product processed in mid- to small-scale mills. For example, the device and method are useful for fortifying a food product processed by a hammer mill.

Hammer mills are most common in Africa and feature a shallow sloped trapezoidal-shaped hopper.

Figs. 1 and 2 show one embodiment of a gravimetric food fortification device in accordance with the invention (with Fig, 2 showing the addition of an optional grain shield). The device includes a weight-sensitive hopper module 1,a nutrient dispensing module 2, a frame 3, a protective rim 4a, an adjustable gate 5, and one of two adjustable legs 6. In Fig. 2 there is also shown a grain shield 4b, a computer module 7, and a chute 8. In greater detail, the weight-sensitive hopper module 1 measures the weight of a free-flowing dry food product, such as, for example, wheat, com (maize), millet, barley, sorghum, diced cassava, rice, beans, etc. As the food product flows down the chute 8 and out the gate 5 of the hopper 1 (and thereby into the hopper of an existing mid- to small-scale mill within which the food fortification device is positioned), essential nutrients are proportionally dispensed by the nutrient dispensing module

2, Essential nutrients that may be dispensed include, for example, iron, folic acid, zinc, iodine, vitamins A, B, and C, etc. In one embodiment, the adjustable gate 5 enables a user (e.g., a mid- to small-scale miller) to speed up or slow down the outflow rate of the food product.

The computer module 7 and nutrient dispenser 2 are attached externally to the frame 3, which houses the weight-sensitive hopper 1. A protective rim 4a is attached to the top of the frame 3 and covers the upper edge of the weight-sensitive hopper module 1 to avoid false weight readings. In one embodiment, the protective rim 4a bends down vertically at 90 degrees inside of the weight-sensitive hopper 1, but do not touch it. The purpose of the protective rim 4a is to shield the upper insides of the weight-sensitive hopper 1 and to thereby block the food product from spilling into a gap between the weight-sensitive hopper 1 and the outer frame 3. The purpose of the grain shield 4b is to increase the volume of the weight- sensitive hopper 1 and to allow for rear loading of grain by the miller without increasing the height of the weight sensitive hopper 1. In one embodiment, the grain shield 4b attaches to the protective rim 4a with four screws. The protective rim 4a and grain shield 4b

may be constructed of sheet metal with a wall thickness of about 1.3 mm or greater.

In further detail, and with reference still to Figs. I and 2, the weight-sensitive hopper module 1 is, in some embodiments, substantially larger than the nutrient dispensing module 2, Generally speaking, the food fortification device proportionally combines a. large amount of the free-flowing food product with a smaller amount of nutrients. In the depicted embodiment, both the free-flowing food product and the nutrients are dispensed into the hopper of an existing mid- to small-scale mill. As such, the grinding capability of the existing mill is employed to mix the two together.-

Fig. 3 shows one embodiment of the weight-sensitive hopper module 1, which, in operation, contains the free-flowing food product. An outlet 9 in the hopper 1 enables the food product to freely flow out of the device and subsequently into the existing mill The core structure of the hopper module 1 is a sheet metal hopper l . Attached to the sheet metal hopper l a is a metal collar lb, and four tabs that each rest on an individual load sensor, as described further below. Systems using fewer (e.g., three) or greater numbers of tabs and/or load sensors are also contemplated. When the free-flowing food product is contained inside the hopper la, the mass of the food product is transferred to the load sensors via the collar tabs lc. In one embodiment, the width and length of the collar lb holding the hopper la are smaller than the width and length of the frame 3 so that there is no contact between the collar lb and the frame 3 that may alter the weight reading.

Figs. 4 and 5 show one embodiment of the frame 3 with modular components removed (in Fig. 5, however, a rear plate 12 and a load sensor ledge 15 featuring load cells 15a are shown as being attached to the frame 3). In this embodiment, the nutrient dispensing module 2 attaches to front mounts 10 via four holes 1.0a. The adjustable gate 5 attaches to a front cross bar 1 1 via a hole 11a. A rear cross bar 13 is present to support the two adjustable legs 6. The two holes 13a in the rear cross bar are large, so as to accommodate strong nuts and bolts for the adjustable legs 6. Two additional sets of holes and nuts 13b, 13c are attached to the frame 3 and provide a second and third position for the adjustable legs 6 so as to accommodate for variable mill hopper lengths.

In one embodiment, the frame 3 is built to sit within an African hammer mill's existing hopper. Differing hammer mill hoppers have a variety of slope angles.

Advantageously, the adjustable legs 6 permit the pitch of the frame 3 to be adjusted, such that the hopper 1 of the

food fortification device is able to be maintained level at all times, regardless of the slope angle of the particular hammer mill within which the food fortification device sits. This maintains a level weight scale, ensuring that the entire food product is accurately weighed. Levelling the hopper 1 also minimizes the chance of the food product spilling over the protective rim 4a of the hopper 1 into the existing mill's hopper or, worse yet, outside of the existing mill's hopper (e.g., onto the floor). Beneficially, with such a design, the food fortification device is readily adapted for use in a variety of mills, with no modifications being necessary to the existing mill or to its existing hopper,

In greater detail, and still referring to Figs. 4 and 5, four holes 12a in the rear plate 12 are used to attach the computer module 7. A cut-out 12b in the rear plate 12 enables wiring from the computer module 7 to pass there through. The load sensor ledge 15 may be welded or otherwise coupled to the four brackets 14 on the top of the frame 3. The load sensor ledge 15 couples with the protective rim 4a, not only to protect the weight-sensitive hopper module 1, but to also protect and house the load sensors 15a.

In one embodiment, the frame 3 is made of a strong material, such as 20 mm wide steel strips with a thickness of 3 mm or greater and with welded joints. The rear plate 12 and load sensor ledge 15 may be constructed of sheet metal with a wall thickness of about 1.3 mm or greater.

Fig. 6 shows an exemplary load cell stack that includes a load cell 15a and a rubber vibration isolation for dampening) pad 15c. The load cell 15a is attached to the rubber vibration isolation pad 15c with two mounting screws 15b. The rubber vibration isolation pad 15c is attached to the load sensor ledge 15 with two mounting bolts 15d. In operation, the rubber vibration isolation pad 15c isolates the load cell 15a from the vibrations generated by the existing mill's hopper (or dampens the vibrations transmitted therefrom). As a result, the effect of those vibrations are substantially eliminated or at least minimized, thereby increasing the accuracy with which the load cells 15a are able to measure the weight of the food product contained within the hopper 1. Alternatively or additionally, similar vibration isolation pads may be placed under each leg 6 of the frame 3 (i.e., on a bottom surface of each leg 6, which contacts the surface of the existing mill's hopper) to further isolate the system.

The load cells 15a used to measure the food product mass operate as follows. As the stamped steel frame 3 flexes under the load of the food product, the output impedance of an embedded resistive

strain gauge varies in proportion to the load. As depicted in Fig. 7, the four load cells 15a may be arranged in a Wheatstone bridge circuit configuration, which is excited by an applied voltage. The output of the Wheatstone bridge is a variable voltage signal that is measured by the microprocessor 91 within the computer controller 7 (see Fig. 1 1).

Fig. 8 shows one embodiment of the nutrient dispensing module 2, which includes nine main parts: a hopper 16, a motor 17, a motor mount 18, a funnel 16a, a nipple 23, a nipple cap 24, mounting plates 25, a lid 26a, and a latch 26b. In operation, the hopper 16 contains the nutrients to be dispensed. At the base of the hopper 16 and attached to the motor 17 is a mechanism for delivering the nutrients. The nutrients are transferred to the mechanism from the hopper 16 via the funnel 16a. With reference to Fig. 9, the mechanism for delivering the nutrients includes a feed screw 19, a flexible coupling 20, a rear bushing 21 , a rubber O-ring 22, the nipple 23 , and the nipple cap 24.

In greater detail, the flexible coupling 20 transfers the rotational motion of the motor 17 to the feed screw 19, but allows for minor misalignment between the motor 17 and the feed screw 19, ensuring that the dispenser 2 does not jam. The rubber O-ring 22 is housed within the rear bushing 21 and prevents nutrients from leaking out the rear of the dispenser 2. A dispensing hole 23a positioned vertically on the top of the nipple 23 allows the nutrients to exit the dispenser 2 and to fail into the existing mill's hopper at a controlled individual dosage rate, and to not be affected by the existing mill's vibrations that may cause an uncontrolled "siphoning" affect due to gravity and atmospheric pressure. The nipple cap 24 ensures that nutrients are only dispensed via the dispensing hole 23 a, as the nipple cap 24 seals off the end of the open tube of the nipple 23. In other words, the nipple cap 24 controls the individual closes and limits the Leal cage of nutrients from the nipple 23 dispensing tube, thereby ensuring accurate dosing each time.

The feed screw! 9 protrude from the rear bushing 21 at the base of the funnel 16a. The feed screw is connected to the motor 17 at the rear of the unit, which is fixed to the motor mount 18. In greater detail, and with reference still to Fig. 9, the function of the nutrient dispenser module 2 is to use the feed screw 19 to push a powdered nutrient out of the dispensing - Si - bole 23a. In operation, the powdered nutrient is initially contained within the hopper 16. The powdered nutrient is then transferred to the feed screw 19 from the hopper 16 via the funnel 16a. The feed screw 19 is

driven at variable speed and/or duty cycle by the motor 17, which, in turn, is controlled by the computer module 7, as further described below.

The four holes 25a in the mounting plates 25 are used to affix the nutrient dispensing module 2 to the front mounts 10 of the frame 3. After being filled with nutrients, the lid 26a of the nutrient dispensing module 2 may be closed and locked in place by the latch 26b. Again, this ensures that nutrients are not inadvertently dispensed out the top of the hopper 16 and into the existing mill's hopper, which would unfortunately result in an incorrect proportion of nutrients being added to the food product. The lid 26a also blocks any foreign objects from entering the hopper 16 of the nutrient dispensing module 2, as well as seals the nutrients from the elements and thus prolongs their shelf life. In one embodiment, the feed screw 19 is made of metal to ensure durability. The motor 17 may be a stepper motor, a gear motor, a servomotor, or a similar motor.

Fig. 10 depicts one embodiment of an exterior surface of the computer module 7, which may be employed to signal a user of the food fortification device (e.g., a mid- to small- scale miller). An LED display 7a indicates the weight of the food product, for example in kilograms. A tare button 7b allows the user to zero the scale. An up button 7c and a down button 7d allow the user to enter a "set up mode" in order to adjust parameters, as well as to retrieve stored data from a "monitor's menu," In one embodiment, the size of the LED display 7a is large enough for an operator to see from at least ten feet away. The tasks of the computer module 7 may include, but are not limited to, collecting weight data from the weight sensors (i.e., the load cells 15a), calculating a loss-of-mass rate of the dry food product as it flows down the chute 8 and out the adjustable gate 5, controlling the delivery rate of the nutrient dispensing module 2, and storing operational data to non-volatile memory. In one embodiment, this logged data is transmitted via audio frequency to a smart phone held close to the computer module 7. In one such embodiment, a user commands the computer module 7 to transmit the stored data report via Morse code, which is detected by a microphone of a smart phone running a Morse code application. The report may be stored on the smart phone along with the time and date, and may be geo-tagged with location coordinates. The report may then conveniently be sent by SMS or e-mail from the smart phone to another location, thereby making remote monitoring possible. As will be understood by one - 3 0 - of ordinary skill in the art, rather than

employing Morse code, other methods may be employed to transmit the stored data report from the computer module 7 to the smart phone. For example, standard touch-tones, audio frequency shift keying (AFSK), or audio phase shift keying f APSK) may be employed for such a purpose.

Fig. 11 depicts an exemplary block diagram of the computer module 7. The core of the computer module 7 is a microprocessor 91. The microprocessor 91 connects to motor driver circuitry 92, non-volatile memory 93, the LED display 7a, a real time clock 94, and various sensor circuitry 96, 97, including the weight sensors (i.e., the load cells 15a). The motor driver 92 connects to and drives the motor 17. A battery 95 powers the clock 94, and a power supply 98 supplies electrical power to the computer module 7.

In operation, the microprocessor 91 reads weight data from the weight sensors (i.e., the load cells 15a) in the weight-sensitive hopper module 1 , and controls the speed of the motor 17 in the nutrient dispenser module 2 by controlling the motor driver 92. Time-stamped data (e.g., the readings from the weight sensors, the amount of nutrients dispensed, the times at which the nutrients were dispensed, etc.) may be stored to the non-volatile memory 93, while the weight of the food product may be output on the LED display 7a, as previously described.be output on the LED display 7a, as previously described.

Fig.12 depicts one embodiment of a method for fortifying a food product, for example using the device and electronics described above. Fig. 12 represents, for example, pseudo-code for the software being executed by the microprocessor 91 inside the computer module 7. With reference to the flowchart of Fig.12, following initialization of the device and electronics, it is first determined whether the weight-sensitive hopper module 1 is being filled with the food product. This may be determined to be the case when, for example, the load cells 15a detect an increasing load. If the hopper module 1 is indeed being filled, the microprocessor 91 then waits until the hopper module 1 has stopped filling. This may be determined to be the case when, for example, the load cells 15a detect a stable load. Once it is determined that the hopper module 1 has stopped filling, the microprocessor 91 marks the current weight of the food product. The microprocessor 91 then monitors the load cells 15a to determine once a given unit (e.g., 1 kg) of the food product has been dispensed from the hopper module i (i.e., delivered down the chute 8 and out the adjustable gate 5 into the existing mill's hopper). Once it is determined that that given unit of the food

product has been dispensed, the microprocessor 91 then causes a given unit (e.g., 1 g) of the nutrients to be dispensed from the nutrient dispensing module 2 into the existing mill's hopper so as to be mixed with the food product - 3 1 - using the existing mill's grinding capability, as described above. The microprocessor 91 then marks the current weight of the food product anew, and again monitors the load cells 15a to determine once another given unit (e.g., 1 kg) of the food product has been dispensed from the hopper module 1 (i.e., delivered down the chute 8 and out the adjustable gate 5 into the existing mill's hopper). Accordingly, the process repeats, so as to mix the food product and the nutrients in proportion. Returning to the top right-hand side of the flowchart depicted in Fig.12, if after a period of time the microprocessor 91 determines that a given unit (e.g., 1 kg) of the food product has not been dispensed from the hopper module 1, the microprocessor 91 again determines whether the weight-sensitive hopper module 1 is being filled with the food product (e.g., it is determined whether the load cells 15a are detecting an increasing load). If so, flow returns to the left-hand side of Fig. 12, where the microprocessor 91 again waits until it is determined that the hopper 1 has stopped filling. If, on the other hand, it is determined that the weight-sensitive hopper module I is not being filled with the food product, it is next determined whether the weight-sensitive hopper module 1 is empty (e.g., whether the load cells 15a are detecting a lack of load). If not, flow returns to the top right-hand side of Figure 12, where the microprocessor 91 again monitors the load ceils 15a to determine once a given unit (e.g., 1 kg) of the food product has been dispensed from the hopper module 1. If, on the other hand, the weight-sensitive hopper module 1 is empty, flow returns to the top left-hand side of Figure 12, where the microprocessor 1 waits until it detects that the hopper 1 is again being filled.

Accordingly, as will be understood by one of ordinary skill in the art, various embodiments of the present invention may be employed to add essential nutrients to food products in an extremely accurate and precise manner, while still employing the operating features (e.g., the grinding capabilities) of existing mid- to small-scale mills. Embodiments of the present invention thus enable fortified food products to be collected from the output of those existing mid- to small-scale mills.

Exemplary advantages of the present invention's embodiments include, without limitation:

» the use of modular components that allow the device described herein to be easily added to a wide variety of existing food processing operations;* a design that is optimized for ease of manufacture and field repair; • an operating procedure that causes little disruption to the established daily routine of the user (e.g., the miller);• a low up-front device cost that makes the device accessible to local communities, governments, and non-governmental organizations ("NGOs");® precise dosing that allows the nutrients to be more highly concentrated, substantially lowering on-going nutrient cost; and • a low-cost on-board microprocessor that enables the accuracy of doses to be stored, displayed, and then monitored, either locally or remotely by a user sending the stored data via SMS or e-mail to a regional monitor, thereby substantially lowering on-going monitoring costs.);

While the foregoing written description of the invention enables one of ordinary skill in the art to make and use what is considered presently to be the best mode thereof, those of ordinary skill in the art will understand and appreciate the existence of variations, combinations, and equivalents of the specific embodiments, methods, and examples provided herein. For example, types of nutrient feeders other than the screw type feeder can be utilized to dispense the nutrients. Accordingly, the invention should not be limited by the above described embodiments, methods, and examples, but by all embodiments and methods within the scope and spirit of the invention.

Claims

1. A gravimetric food fortification device comprising: a frame; a shield coupled to the frame; a weight-sensitive hopper coupled to the frame for dispensing a food product into a second hopper; a nutrient dispenser coupled to the frame for dispensing nutrients into the second hopper; a computer processor for calculating a loss-of-mass rate as the food product is dispensed from the weight-sensitive hopper and for causing the nutrient dispenser to dispense the nutrients into the second hopper in proportion to the loss-of-mass rate; and a mounting system for adjustably mounting the frame within the second hopper.

2. The device of claim 1 further comprising a plurality of load sensors coupled to the frame.

3. The device of claim 2, where in the weight-sensitive hopper comprises a plurality of tabs contacting the load sensors.

4. The device of claim 2 further

comprising a plurality of vibration isolation pads disposed between the frame and the load sensors

5. The device of claim 1, wherein the weight-sensitive hopper comprises a chute in fluid communication with an outlet.

6. The device of claim 5 further comprising a gate to control an outflow rate of the food product through the outlet.

7. The device of claim 1 further comprising a protective rim covering at least a portion of an upper edge of the weight-sensitive hopper.

8. The device of claim 1, wherein the nutrient dispenser is located external to the weight- sensitive hopper.

9. The device of claim 1, wherein the nutrient dispenser comprises a motor, a feeds crew driven by the motor, and a nipple for dispensing the nutrients into the second hopper.

10. The device of claim 9 further comprising a flexible coupling disposed between the motor and the feed screw.

11. The device of claim 10 further c prising a seal disposed in proximity to the flexible coupling to seal a proximal end of the feeds crew.

12. The device of claim 9 further comprising a nipple cap coupled to the nipple.

13. The device of claim 1, wherein the computer processor is configured to store operational data to computer memory.

14. The device of claim 13, wherein the computer processor is further configured to transmit wirelessly the stored operational data to another computing device.

5. The device of claim 1, wherein the mounting system is configured to adjust a level of the frame.

16. The device of claim 1, wherein the mounting system comprises a plurality of adjustable legs coupled to the frame.

17. The device of claim 16 further comprising a plurality of vibration isolation pads coupled to the adjustable legs.

18. The device of claim 1, wherein the second hopper comprises a sloped hopper of a hammer mill.

19. A method for fortifying a food product, the method comprising: a) positioning a gravimetric food fortification device within a sloped hopper, the gravimetric food fortification device comprising: i) A frame

ii) A shield coupled to the frame iii) A weight-sensitive hopper coupled to the frame for dispensing the food product into the sloped hopper iv) A

nutrient dispenser coupled to the frame for dispensing nutrients into the sloped hopper; and v) a mounting system for adjustably mounting the frame within the sloped hopper; b) Adjusting a level of the frame through use of the mounting system; c) Calculating a loss-of-mass rate as the food product is dispensed from the weight- sensitive hopper and into the sloped hopper; and d) Dispensing the nutrients into the sloped hopper in proportion to the loss-of-mass rate.

20. A fortified food product produced in accordance with the method of claim 19

****

Inventors and those in creative fields seek protection for their works!



የአዕምሮ ውጤት የሆኑ የፈጠራ ሥራዎች እንደማንኛውም ቁሳዊ ንብረት ሀብቶች ናቸው!

አድራሻ

ዋና መስሪያ ቤት/Main office- አዲስ አበባ ካዛንችስ ወደ ዑራኤል በሚወስደው መንገድ

ስልክ/Tel- 011 552 8000 (**ዋና ዳይሬክተር ጽ/ቤት**/ Director General Office)

011 552 7202 (**ኮሙኒኬሽን አገልግሎት**/ Communication Affairs Directorate)

ፖ.ሳ.ቁ/P.O.box- 25322/1000 | ፋክስ/Fax- 0115529299 | ኢ.ሜይል/Email- info@eipa.gov.et

ethiopianipauthority

ባህር ዳር ቅርንጫፍ ጽ/ቤት	**ሀዋሳ ቅርንጫፍ ጽ/ቤት**	**ጅማ ቅርንጫፍ ጽ/ቤት**
Bahirdar Branch office	Hawasa Branch office	Jimma Branch office
ስልክ/Tel- 058 226 6232	ስልክ/Tel- 046 212 3510	ስልክ/Tel- 047 211 2198
ፖ.ሳ.ቁ/ P.O.box - 1764	ፖ.ሳ.ቁ/ P.O.box - 1307	ፖ.ሳ.ቁ/ P.O.box - 780