

### An Interchangeable Harvesting Apparatus And Method Thereof IITM Technology Available for Licensing

#### Problem Statement

- Conventional harvesting systems do not succeed in to meet the **demands** of modern agricultural practices.
- Further, often **lack versatility and struggle to efficiently perform multiple tasks** such as weed removal, crop cutting, and fertilizing.
- Farmers often need to **invest** in separate equipment for **each specific operation**, leading to **increased costs and logistical challenges including others**.
- Hence, there is a need for an advanced harvesting apparatus, which is reliable and does not suffer from discussed above problems. Present patent addresses aforementioned technical problems efficiently.

#### Technology Category/ Market

**Technology:** Interchangeable Harvesting Apparatus;

**Industry & Applications:** Agriculture Industry, Gardening Machine, Harvesting Equipment & etc.;

**Market:** The global harvesting equipment market is projected to grow **\$42.55Bn** at a **CAGR of 6.15%** during forecast period (2024-32)

#### Technology

- Present patent describes an **interchangeable harvesting apparatus** for narrow cutting width applications.
- Further, said apparatus includes a frame, an electric motor, a gearbox, a connecting unit and at least one attachable unit interchangeably connected to the connecting unit.
- A **blade hub** comprises a removable and interchangeable blade for weed removal.
- The **cutting unit** configured for crop-cutting operations.
- A **dispensing mechanism** configured for fertilizing & seed dispensing operations.

- Disclosed patent describes said dispensing mechanism with a **modular container, grooving blade hub, screw feeder**, and a **v-blade** for **controlled & regulated fertilizer & seed dispensing**.
- Capable to provide **clean and efficient cutting process**, which can be crucial for agricultural productivity.

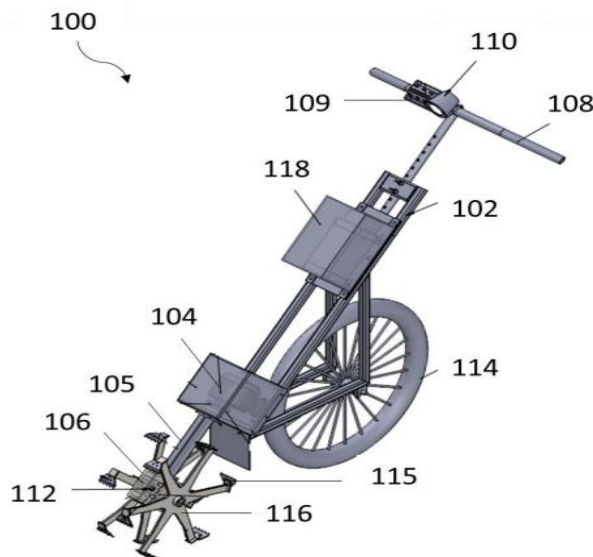


Fig. 1

**Fig.1** illustrates an Interchangeable Harvesting Apparatus;

#### Intellectual Property

**IITM IDF Ref. 2555;**  
**IN Patent No. 518085 (Granted)**

#### TRL (Technology Readiness Level)

**TRL 5:** Technology validated in relevant environment

#### Research Lab

**Prof. Shankar Krishnapillai;**  
Dept. of Mechanical Engineering.

#### CONTACT US

**Dr. Dara Ajay, Head TTO**  
Technology Transfer Office,  
IPM Cell- IC&SR, IIT Madras

**IITM TTO Website:**  
<https://ipm.icsr.in/ipm/>

Email: [smipm-icsr@icsrpis.iitm.ac.in](mailto:smipm-icsr@icsrpis.iitm.ac.in)  
[sm-marketing@imail.iitm.ac.in](mailto:sm-marketing@imail.iitm.ac.in)  
Phone: +91-44-2257 9756/ 9719

### Images

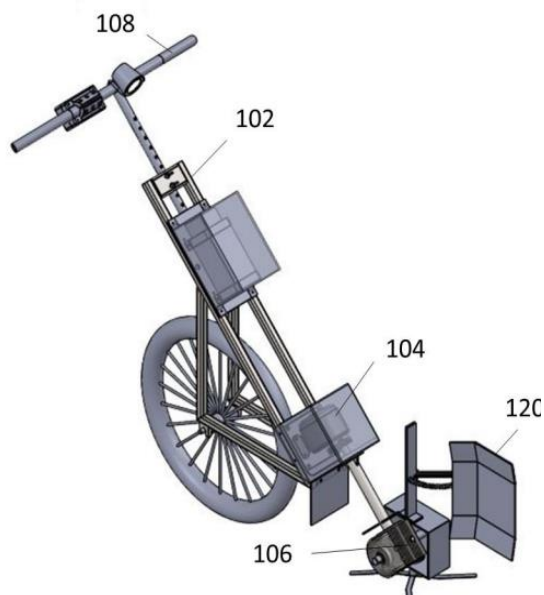


FIG.2: : Illustrates an interchangeable harvesting apparatus with a cutting unit for crop cutting operation;

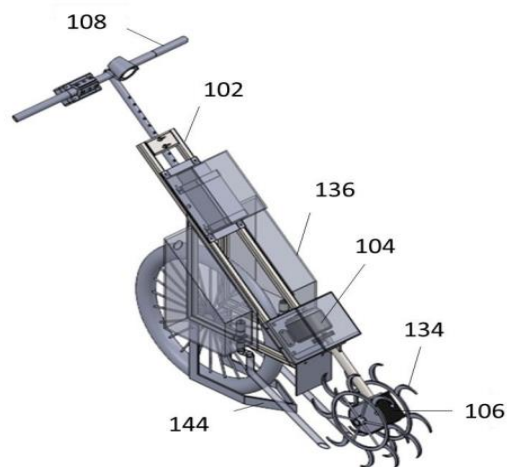


Fig. 3A

FIG.3: Illustrates an interchangeable harvesting apparatus with a dispensing mechanism for dispensing fertilizers and seeds operations

### Key Features / Value Proposition

#### ❖ Technical Perspective:

#### Prototype:

- Offers efficient & customizable solutions for agricultural tasks, specifically tailored for **small-width applications** (cutting width ranging from 122mm to 127mm). (Refer. Fig 2)
- Claimed design promotes also a gardening machine, contributing to **sustained & effective** weed management over time.

#### Important Features:

- **Enhanced precision, targeted** weed removal, & **versatile operation** in various confined spaces.
- Disclosed apparatus is **compact size**.
- Further, by removing the **weed from its roots**, the claimed apparatus reduces the **regrowth**, resulting a **controlled weed management**.
- The dispensing mechanism ensures **controlled & regulated distribution** of **fertilizers & seeds**.

#### Enhanced Longevity:

- The removable & interchangeable blade in the claimed apparatus is fortified with a **durable & wear-resistant coating**, & said coating significantly enhances the **blade's longevity**, ensuring **sustained effectiveness** in weed removal over **extended periods**.

#### ❖ Industrial Perspective:

- **Cost effective** apparatus is widely applicable in **agriculture industry, gardening machine & etc.** efficiently.

### CONTACT US

Dr. Dara Ajay, Head TTO  
Technology Transfer Office,  
IPM Cell- IC&SR, IIT Madras

IITM TTO Website:  
<https://ipm.icsr.in/ipm/>

Email: [smipm-icsr@icsrpis.iitm.ac.in](mailto:smipm-icsr@icsrpis.iitm.ac.in)  
[sm-marketing@imail.iitm.ac.in](mailto:sm-marketing@imail.iitm.ac.in)

Phone: +91-44-2257 9756/ 9719