

New Harvesting Machine For Agrivoltaic Herbal Crops Based On Reel-wheel Rotating Mechanism

PATENT ID: P12020003839

BRIEF FACTS

- ✓ A harvesting machine that able to be used particularly under the photovoltaic solar panel that provides limited space for the machine to be operated manually.
- ✓ Incorporate a reel-wheel-chain mechanism as an effective alternative to the existing blower/suction fan mechanism to collect the harvested plant.
- ✓ With an aid of harvesting machine that uses motor to operate the cutter and a worker to handle the operation, this semi-automatic harvester will make the harvesting process easier.



OBJECTIVE

- ✓ Introduce the reel-wheel-chain mechanism as an alternative.
- ✓ Easy to operate harvester with simple machine composition.
- ✓ Easy to be operated either under PV panel or in an open space.
- ✓ Only one motor is used for an hour.
- ✓ Three different cutting height.



NOVELTY



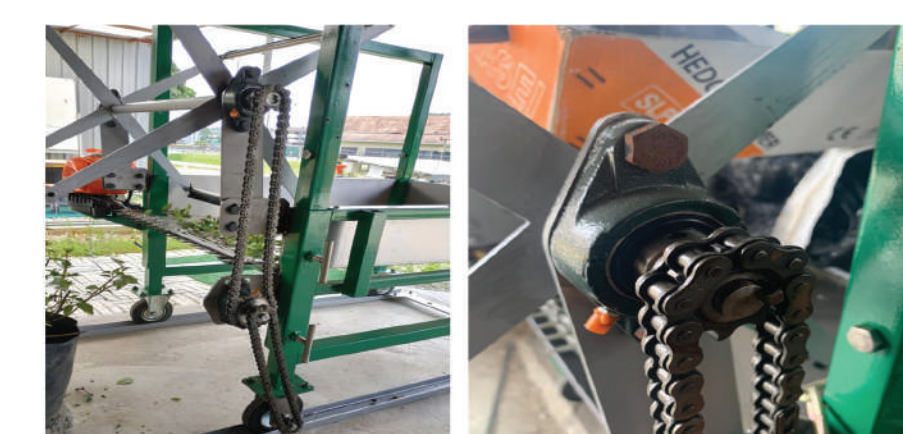
FLEXIBLE It can be used under PV panel, in a confine space where worker is hardly able to perform task or in an open space.

Compared to other harvester in the market, this machine offer alternative in reducing energy consumption due to the incorporation of reel-wheel-chain mechanism to rotate the reel automatically without the assistance of a motor.

ENERGY SAVING ALTERNATIVE

MARKET POTENTIAL

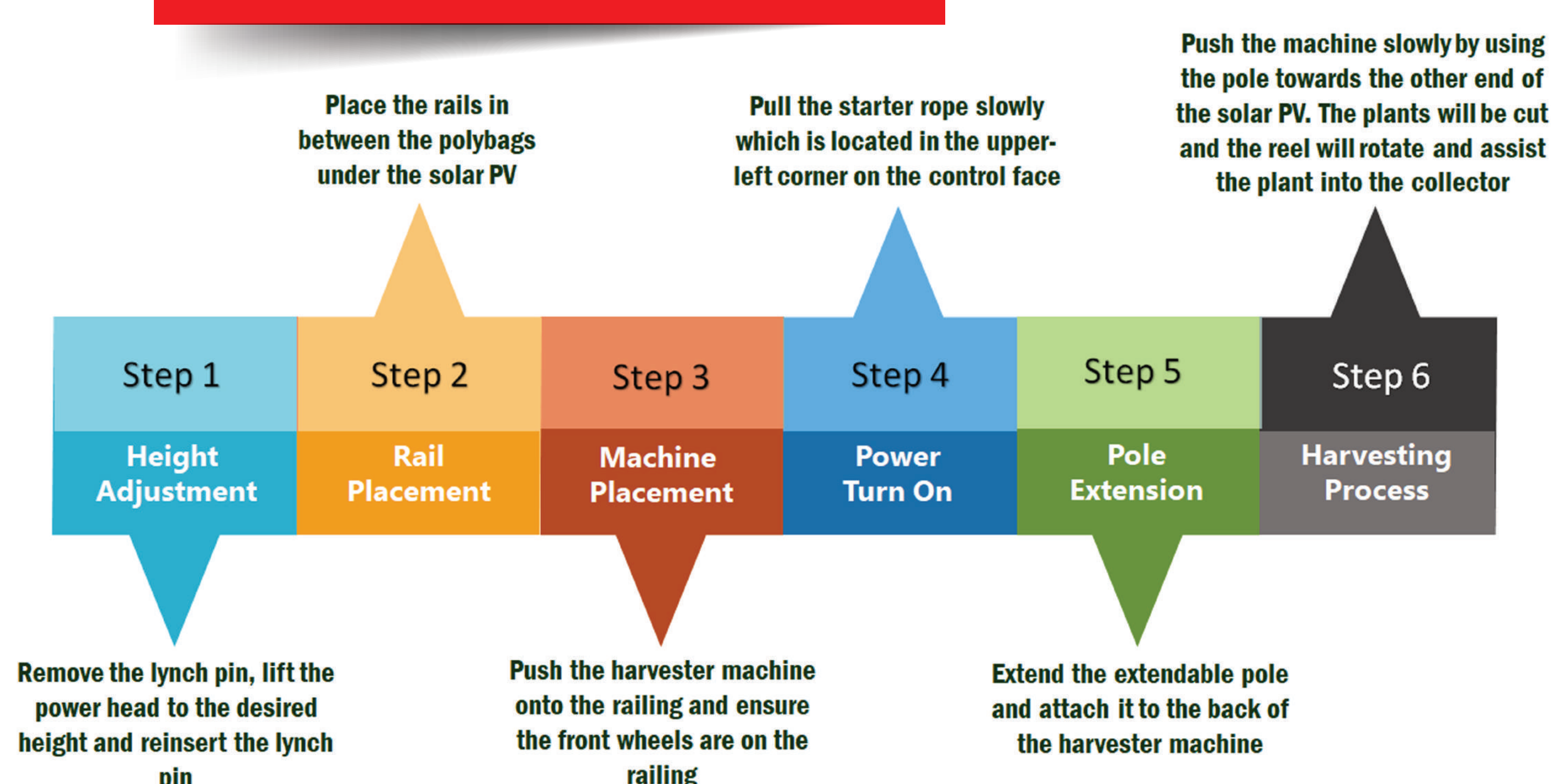
- ✓ Potential to be used in a massive 1304 acres land of herbal crops owned by BioAlpha Holdings Berhad and other herbal plantation's companies.
- ✓ The harvesting machine is easy to manufacture. The production of one harvesting machine required at most 7 days to complete.



7 DAYS



OPERATION



USEFULNESS & IMPACT

Harvesting Capacity

Harvesting Efficiency

New Harvesting Machine
Current Manual Method

24.89 kg/hr

0.81 kg/hr

94%



TRL7 – Demonstration of Prototype

PUBLICATION

Muhamad Nurjafni, J. Mohd Salahuddin, M. B. (2019), Misai kucing plotting arrangement under solar pv panel and harvester machine efficiency - a comparative study, paper presented at the National Convention of Agricultural and Food Engineering 2019, Putrajaya, Malaysia, 21 March 2019, 258-261, ISBN No. 978-967-16145-1-8.



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