Title: Battery Assisted Pineapple Leaves Pruning Device

Application No. : 202231048648

Patent No.: 549396

Date: 30-08-2024

Pruning, weeding and harvesting are three operations performed every year for pineapple cultivation. Ground suckers of the pineapple need to be removed. Pineapple leaves need pruning (trimming) to control sprawl. Pruning pineapple leaves and suckers around the plants are tedious task. Pruning of pineapple leaves is performed after 1–2 months of harvesting. Due to the low level of mechanization in pineapple cultivation and the unavailability of pineapple leaves pruner, pineapple pruning is done manually using dao (knife) in northeast India. The use of dao increased injury to the workers. The short handle of dao causes bending posture. Pruning task with dao is performed repetitivaly. Bending posture and repetitive tasks have been recognized as contributing factors to musculoskeletal disorders (MSDs). Due to the bending posture during pineapple cultivation, almost two-thirds of the participants (68.5%) have a high risk for MSDs. Thorn of pineapple leaves pierce the body of the workers and causes cut and bruise on the hands, legs and eyes. Thorn on the leaves also pokes in the eyes when bent down for pruning the leaves. The pineapple plants are planted randomly and row-to-row and plant-to-plant spacing is not maintained properly. Therefore, a long-handled light weight pineapple leaves pruner needs to be developed to minimize injury and MSDs.

The battery assisted pruning device as shown in Fig. 1 include a cutting unit (102) that is used to prune the leaves, a handle (104), a wire (106), a switch (108), where the handle (104) is held by a worker, and the switch (108) in combination provides for powering on/off the cutting unit (102). The cutting unit (102) includes a cutting blade (110) with a cutting blade guard (112). The cutting blade (110) prunes the leaves of the pineapple, while the blade guard (112) protects blade (110) to the workers. The cutting blade (110) receives power from a DC motor (114) which is included inside a motor cover (116). The motor cover (116) protects the DC motor from water and rain.
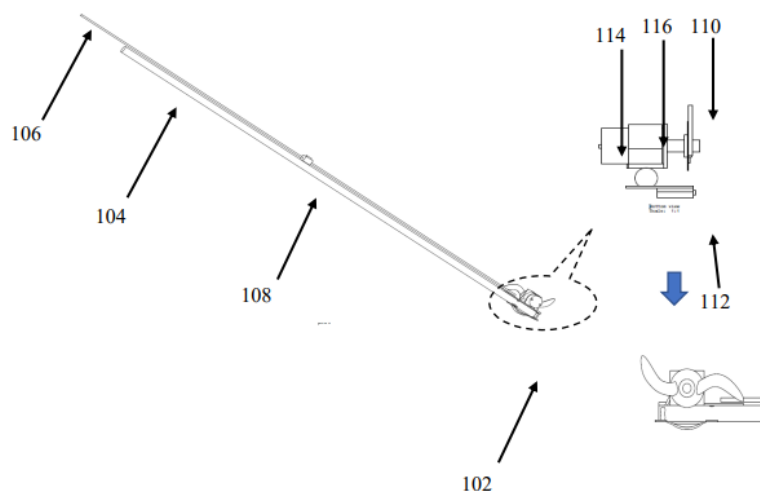

Fig. 1: Developed pineapple leaves pruner