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New weed Removal (Lever Rule 1) Vertical and Inclined Ploughing Tool

Prof. Dr. Lakshman Rao
Principal, Prakasam Engineering college, Kandukur, A.P., 523105
Email : muppa.lr@gmail.com

***Abstract* – An indigeneously multipurpose weed removal tool has been designed and developed for Indian farmers who face shortage of skilled manpower. Now Farmers are being used chemical sprayers for removing weed in their fields, due to this spraying diseases like cancer, asthama, kidney problems and urinal related problems etc spreads in human beings as well as for farmers. So low cost weed removal tool developed for removing deep rooted weed up to 5 inches. This tool has been examined in several fields, successfully removed weed and also depth ploughing. It also ploughing the field vertically as well as inclined. The tool is portable easy to carry and handle, affordable by the farmers and it can also plant vegetable leaves, it reduces maintenance cost of farm fields, labor cost and effectively removes weed. This tool is designed on the basis of the Lever rule 1 Engineering Mechanics [2] "small effort more work" In proper conditions, a single person with this weed removal tool can cover one to two acres in a day while doing any cultivation work, it can be managed by a single person irrespective of gender.**

***Keywords* – Multipurpose, Cultivation, Weed, Lever, Tool.**

I. Introduction

Law of the Lever

The basic mathematical principles of the lever is that the distance from the fulcrum can be used to determine how the input and output forces relate to each other[2]. If we take the earlier equation for balancing masses on the lever and generalize it to an input force (F_i) and output force (F_o), we get an equation which basically says that the torque will be conserved when a lever is used: Fig.1. shows

$F_i a = F_o b$ ……1 eqn

This formula allows us to generate a formula for the "mechanical advantage" of a lever, which is the ratio of the input force to the output force. Mechanical Advantage = $a/b = F_o/F_i$

II. Working Procedure

Lever rule shows us 100kg load lifted by 5kg, through this rule we get mechanical advantage. Here from the fig.2 inclined rods are pressed in to the soil (where weed removal is required) with the help of the horizontal rod shown in fig apply force on the rod down word direction, it does mean weed lifted by small applied force. Farmers can utilize effectively in their fields, weed can be removed up to 5 inches. Human being can gain more work with less effort, without external energy (engine, battery etc.,)

III. Construction Details

Circular pipes (iron) with medium size welded together (T-shape) and two wheels below 10 inches size attached to the tool. Circular bars are forged and welded to the tool (1/2 inch size). Separate pushing arrangement given, shown in the fig.3.

IV. Conclusions

1) Low cost and less weight with Mechanical advantage
2) Environmental protection
3) Small farmers those who are having two acres do not require machine cultivation
4) Rural vs urban can use effectively
5) Productivity can be increased with low cost tools
6) It suits all types of soils

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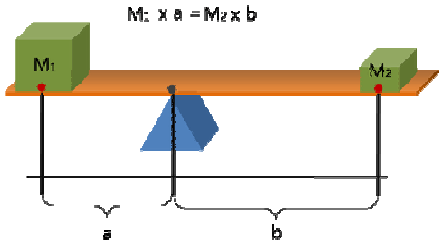

a) Fig.1. a, Lever rule 1

b) Fig.1. b. Formula

Fig. 2. Weed removal tools

Fig. 3. View of the weed removal Tool

AUTHOR'S PROFILE

Prof Dr. M. Lakshman Rao, who is currently rendering his services with Prakasam Engineering College, Kandukur as Principal, completed his B.Tech., course with Mechanical from S.K. University-Ananthapur, A.P. during 1990-1994. He obtained his M.E. with Production Engineering as specialization from MNNIT-Allahabad in 1997. He was conferred with Doctorate (Ph.D. – Mech.,) by OSMANIA UNIVERSITY – Hyderabad in 2010. Out of interest, He did one more Post Graduation with Computer Science as specialization (M.Tech – CSE) From JNTU Campus - Kakinada during 2006-2008.

He specialized in the areas of Metal Forming, Welding, Nano Technology and Composite Materials. He has been publishing his works in various reputed journals across the world for a quite long time. So far he published 35 Technical Papers. And at present, he is guiding 2 Research Students for their DOCTORAL Program. He has abiding passion for teaching and research.

To his credit, he received "Eminent Engineer Award" on Sept 15th Engineers day for the year 2012 from the Institution of Engineers India, Vijayawada Chapter, A.P.,

He received "RAITHU NESTHAM Puraskaram" (Innovations on Agricultural tools) on oct 23rd 2015 from the Raithu Nestham Agricultural Magzine (Monthly).

Again Received "Raithu puraskaram" (Innovations on Agricultural tools) from the B.K.S (Bharathiya Kisan Sangah) on 8th oct 2016

He received "Upadhya Ratna" award from the All The Best Academy Hyd on March 23rd 2016 for his dedicated services in education.

To his credit, he authored Operations Research for Engineering Students, M.C.A. and M.B.A.

He is a life member of Indian Society for Technical Education.