iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 10 **Issue:** III **Month of publication:** March 2022

DOI: https://doi.org/10.22214/ijraset.2022.40896

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 10 Issue III Mar 2022- Available at www.ijraset.com

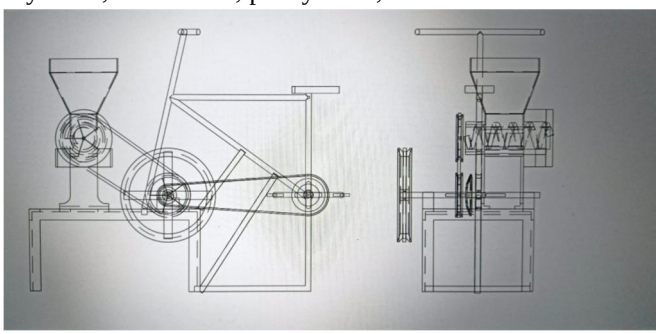
Design and Fabrication of Pedal Operated Wet Pulses Grinding Machine

Dr. A. V. Vanalkar[1], Aniket Armarkar[2], Aditya Ojha[3], Akash Pol[4], Sanket Kalode[5], Sameer Nagdeve[6], Aditya Kahalkar[7]
[1]*Dept. Of Mechanical Engineering, KDKCE, Nandanvan, Nagpur 440009.*

Abstract: ***As the name of project "pedal operated Wet pulses grinding machine" indicates, this machine is used for grinding wet pulses without using electricity. So, it also helps to maintain human health. Human health is also major concern to look out for in today's days. Our aim is to design a pedal operated grinding machine which work on physical strength and no electrical power is used for completion of task and it has high efficiency and require minimum efforts. The system is also useful for health conscious work out purpose and it can be used in urban as well as rural areas. The machine is economically viable, can be adopted for human powered process units which could have intermitted operation without affecting the end product. We got the idea of making this machine by reading the literature reviews of some well-known people as shown below.***
Keywords: Physical strength, Pulse grinding, Pedal power, Maintain human health, Sitting posture.

I. INTRODUCTION

In the present days and future, world is moving toward the fully automated machining, where the human efforts are considerably decreased in each and every aspect. Hence in this paper we have discussed about how grinding machine doesn't consume electricity as well as how increases the human health in low cost. The wet pulses grinding machine is used for performing grinding work. Its function is similar like a exercise bicycle, which was basically used for exercising purpose has been modified for grinding. This grinding machine doesn't consume electricity, only human power is required but human power is not constant it may vary. There are several components which are... flywheel, chain drive, pulley drive, base of structure etc.



II. OBJECTIVE

A. No need of electricity to complete the task.
B. Greater efficiency must be required.
C. Price should be low.
D. It should maintain human health.
E. It can be used by men as well as women.

III. LITERATURE REVIEW

There is lots of exploration and evaluation related to the design of pedal operated grinding machine that has been done in the past.

1) Yang Jianhua [1], tells us about Manpower driven small sized grinding machine. The invention discloses a Manpower driven small sized grinder which consists of a frame, a spindle fixed horizontally on the frame, a rotating sleeve mounted on the spindle through a bearing, a grinding disc, a sprocket and a Manpower drive mechanism, etc. It provides grinding force from mechanical power.

©IJRASET: All Rights are Reserved

2) R. Subash [2], says that in this paper we designed Pedal operated hacksaw machine which can be used for various purpose such as In Industrial applications and for domestic needs where no predetermined input energy or power is required. This project consists of a sprocket arrangement, eccentric disc mechanism, chain drive, etc. This design is made to transmit motion to hacksaw blades for performing cutting operation between tool and workpiece by applying physical strength due to pedalling.

3) Karl Kroemer [3], says that in this paper we see the efficiency of foot motions or muscular force applied to pedals or between pedals depending upon the body support and body posture of the seated operator. There must be Proper alignment made between the frame and required adjustment with sitting posture of the user to make him comfortable for performing the task. So, it will increase the efficiency or strength of worker.

4) Songtao Zhu [4], says that the reason behind this study was to examine sitting posture based on the relative distance between the pedal and the sitting reference point (SGRP) in vertical and horizontal directions as a complete combination of pedal assembly. The sitting comfort of operator at various stages of operation and at different sitting posture was examined and calculated at scaled values, by measuring posture angle (hip, knee and ankle) for each posture.

5) Prem Shanker Tiwari [5], say that, system require maximum pedal force than road vehicles. the literature concerning human strength in the operation of fully control pedal although extensive is not a designer to adequate. Study was aimed to quality human strength in the operation of control by user.

6) Maurice Niyigena [6], say that, the modernization of this machine. This machine is low-cost maintenance. Low cost affordable, most of all it is cheap, so that everyone should afford and ecofriendly. POGM is new idea. Grinding machine are available in the market with the specification of grinding immediately

7) Dharwa Chaitanya Kirti Kumar [7], say that, Design and Development of a machine which doesn't consume electricity for operations like cutting, grinding, etc. This is a Human-powered machine which runs on chain drives, with help of human effort.

8) Rahil Patel [8], say that, we had successfully designed human power grinding machine which can be used for many purposes like grinding, cutting, washing etc. this system is useful for the human health.

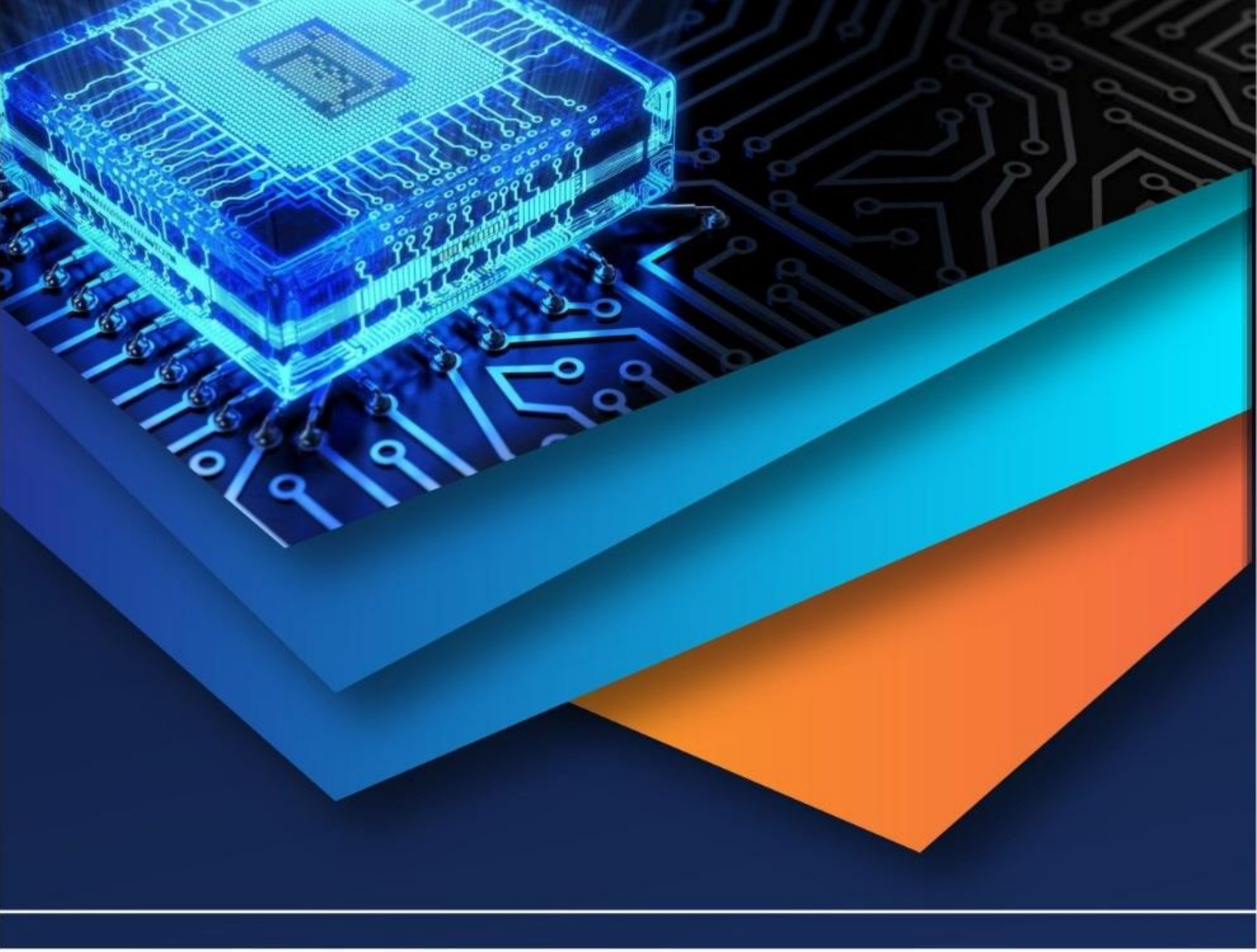
IV. CONCLUSION

Based on the above study of human power grinding concept and its different applications, pulse grinding process, grinding machines following conclusion can be drawn.

REFERENCES

[1] YANG JIANHUA, (CN104369099 A), "International journal of engineering and technology," Volume3, issue 2, 2017.4
[2] R. Subash, "International Journal of Mechanical Engineering and Technology (IJMET)," Volume 8, issue 6, June 2017, pp. 631-640, Article ID: IJMET_08_06_066.
[3] KARL KROEMER, "Virginia Polytechnic Institute and State University, VT. Grado Department of Industrial and Systems Engineering, Doctor of Engineering.
[4] SONGTAO ZHU, "Advances in Intelligent Systems and Computing," July 2018, Conference: International Conference on Applied Human Factor and Ergonomics.
[5] Prem Shanker, "International Journal of Industrial Ergonomics 37(4):283-289," April 2007.
[6] Dharwa Chaitanya Kirti Kumar, "A Research on Multipurpose Machine, International Journal for Technological Research in Engineering," Volume 1, issue 1, 2013.
[7] Rahil Patel, "International journal of engineering and techniques," volume 3, issue 2, March-April 2017

©IJRASET: All Rights are Reserved | SJ Impact Factor 7.538 | ISRA Journal Impact Factor 7.894 |



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)