



Mahatma Gandhi Missions College
of Engineering & Technology

Design and Fabrication of Pedal Powered Threshing Machine

MUKESH PANDEY, KRISHAN KUMAR, NAVEEN KUMAR, RINKU
Department of Mechanical Engineering

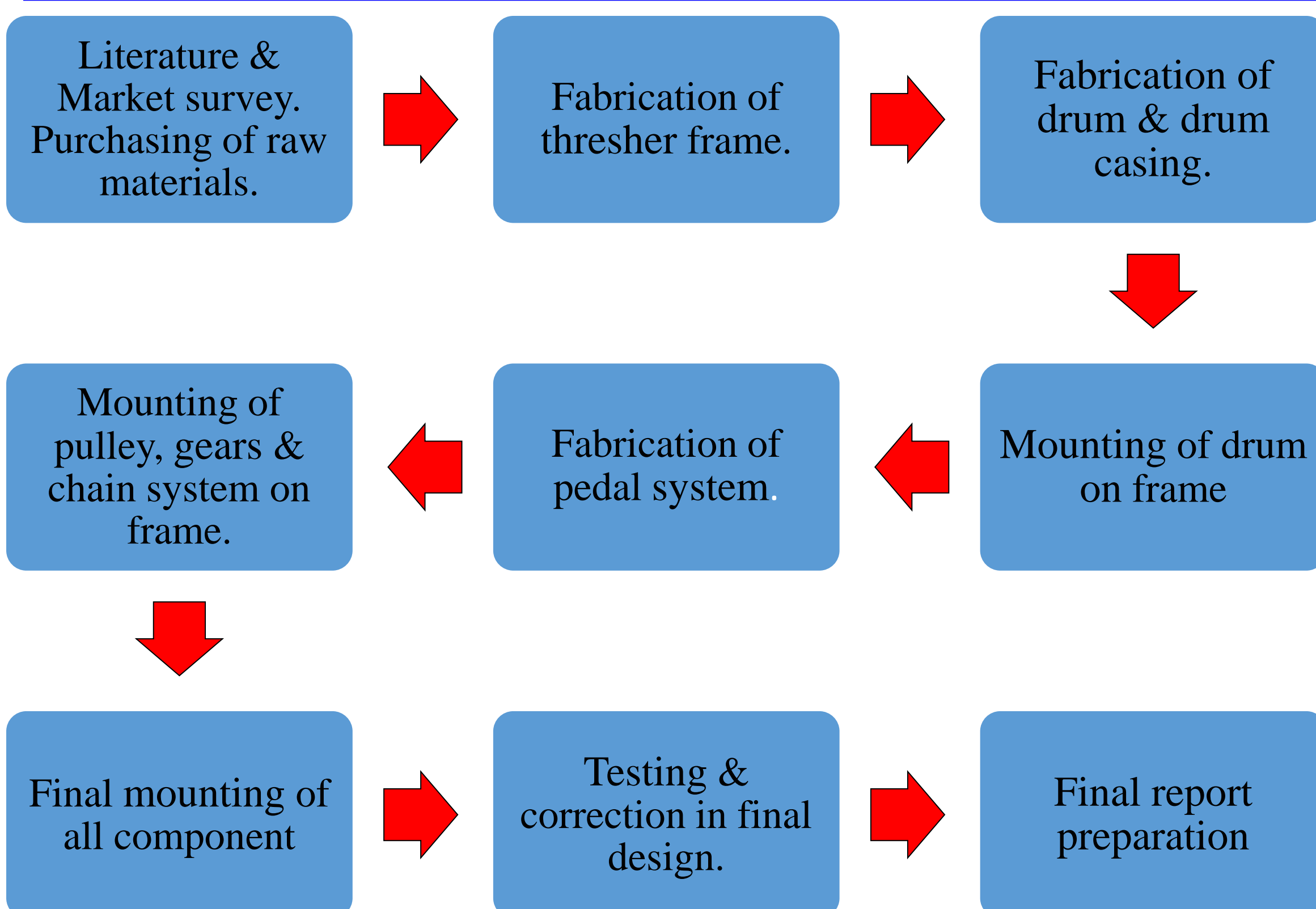
Introduction

- A pedal-driven machine and methods for processing grain using the physical exertions of two person.
- It works on pedalling mechanism for driving both the thresher and the winnower.
- The winnower include a squirrel cage fan ,a grate, disposed in a path of upwardly flowing air, for expelling chaff and collecting grain.

Project Objectives

- Fabrication of pedal powered threshing machine to avoid the use of energy like petrol, diesel, and electricity etc.
- The device should be suitable for local manufacturing capabilities.
- The attachment should employ low-cost materials and manufacturing methods.

Methodology



Results and Discussion

Since, we are providing 100 watts, which is equal to 0.1341-horse power. by the physical exertion of person by pedaling, but we are using a flywheel having diameter 393.70 mm, so it will give power output of 500 watts (0.60 horse power). By comparing our machine with modern paddy-wheat thresher which operate at 5 horse power with 650 rpm by an electric motor and gives 1500 rpm with tractors P.T.O. having capacity of 1000-1200 kg per hour (maharashtradiirectory.com/catalog/dagobaengineering). The effort provided by us is 8.33 times less than the power thresher so our machine can produce 144.05 kg/hr.

We have measured the rpm of drum of pedal powered threshing machine by tachometer and we get following result:

| SL. NO. | ATTACHMENT OF BLOWER | RPM |
|---------|----------------------|-----|
| 1. | Without Blower | 913 |
| 2. | With Blower | 552 |

| SL. NO | THRESHER | RPM | HORSE POWER | OUTPUT Kg/hour | LINK |
|--------|----------------------------|------|-------------|----------------|---|
| 1. | Paddy-wheat thresher | 1500 | 5 | 1000-1200 | maharashtradiirectory.com/catalog/dagobaengineering). |
| 2 | Paddy wheat thresher S1100 | 2800 | 16 | 1500-2200 | coconutmachine.in/paddy-thresher.html |
| 3. | Pedal powered thresher | 552 | 0.60 | 90-100 | |

IMAGES



Conclusions

- We have done various manufacturing processes during the making of threshing stand and drum with shaft .

we have got following result:

- We have got 913 rpm of drum without using blower
- We have got 552 rpm with blower
- The output of pedal powered threshing machine is 90-100 kg/hr.

References

- [1]. The Design and Construction of Maize Threshing Machine. Abdulkadir baba assan, Matthew Sunday Abolarin, Olufemi Ayodeji Olugboji and Ikechukwu Celestine Ugwuoke/2009 <http://www.journal.au.edu/au techno>.
- [2]. Power Threshers – Safety Requirements. Bureau of Indian standards. IS 9020 (B) (2002)..

Guided by: Mr. Ravindra Ram
(Asst. Prof.)