

DESIGN AND FABRICATION OF HYDRAULIC COMPACT MANHOLE CLEANING MACHINE

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Keywords:

Wheels, Worm Wheel, Hydraulic Operation Bucket

Introduction:

A manhole is an opening through which a man may enter a sewer for inspection, cleaning and other maintenance and is fitted with a removable cover to withstand traffic loads. The manholes are first constructed and then the sewers are laid interconnecting these manholes. The machine that we are designing uses a pulley mechanism using wire rope. This requires a worker to operate into the manhole in order to open and close the buckets.

This machine is driven using battery/electricity to insert the bucket into the manhole, to open, to close and remove the waste collected successfully. By doing so we intend to make the project to be semi – automatic as well.

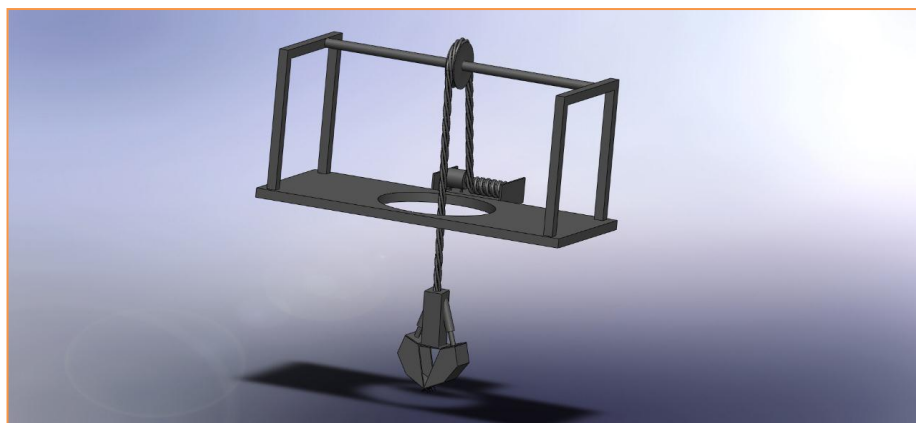
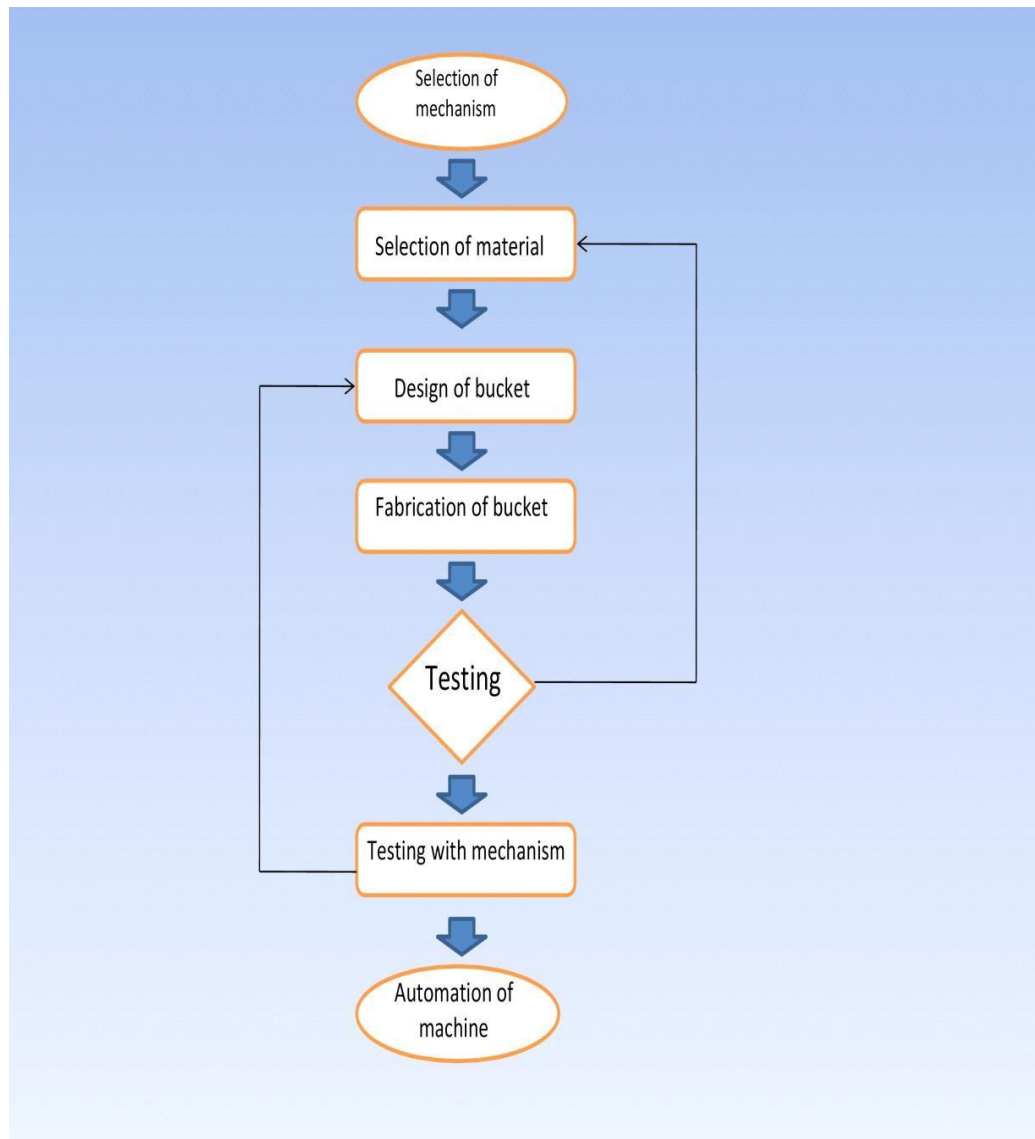
Objectives:

- The main aim of this project is to clean and collect the sewage waste by using compact hydraulic manhole cleaning machine.
- We are planning to design and fabricate the hydraulic mechanism to open and close of the bucket which is made up of galvanized sheet
- We are planning to fabricate the compact hydraulic manhole cleaning machine at reasonable cost and reduces the space compared to existing machine.
- We are also planning to fabricate the compact hydraulic manhole cleaning machine which can be operated by both skilled or unskilled labours or workers

Methodology:

1. The base consists of cast iron, length-3feet and breadth-3feet.
2. Height of the frame 4 feet.
3. Length of wire rope -20feet(steel guidance cable)
4. DC Motor -60hp,12v
5. Bucket- Galvanized sheet

6. Bucket operated-hydraulic system (.25HP , 5Bar)



Conclusion:

Cleaning of drain/ gutters has continually been a haul .Labors cleaning gutters and drains looks unethical and conjointly ends up in the high risk of obtaining infected or poisoned large amount of waste chemicals in them. Also throwing of bottles, plastics and other such objects into the gutter lead to narrowing and eventually results in the blockage. So this device whose primary aim is to remove solid wastes from the drainage in order to ensure that there is no clotting of drainage water i.e to avoid gutter jamming issues was constructed successfully ..It lets the fluid to flow through it and it catches the large solid waste and accumulates it. So it must be installed at the specific points instead of cleaning the whole gutter floors. The system is efficient way to clean the gutter and also requires very low power. We can apply this project in remote and slum areas with effectiveness. In slum areas this is the major problem and we can apply this project in those areas and can safeguard the health of the people

Scope for future work:

1. We gathered information and equipment required for the HYDRAULIC COMPACT MANHOLE CLEANING MACHINE (HCHCM).
2. Studied the construction and principle of HCHCM.
3. To Fabricate the HCHCM and to test its working. We hope that this will be among the most versatile and interchangeable in cleaning system.
4. As the project has been based on the concept, to integrate the benefits for human health, societal concerns and national cleanliness policy. Therefore it covers many sections of proportionate benefits to the all sphere of our present life.
5. For Industry- Our Project, as being new in the market network will provide the entrepreneurs the much-needed ideas to blend the technology with societal benefits and harness the market.
6. As a nation we are focusing on the Public benefits in the policy making and providing the young generation the employment and environment safety. While being a high-market potential project conserves the profit for the industry section with the advance of providing the corporate social benefits.
7. For Society- Sanitations is one of the very basic amenities required for the basic living of a man and providing with such a technological and economical instrument which can change the pathetic sewerage condition of the town and cities of mediocre India.
8. With such a potential instrument of employment generation in the society through industry co-operation, these products land you in the win-situation for the people.