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### DEVELOPMENT OF PEDAL OPERATED FLOOR CLEANING MACHINE

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#### Abstract

Cleaning has been essential and ignored daily routine. Manually floor cleaning machine is use for cleaning floor with the help of human efforts. In this project, an effort has been made to develop a manually operated floor cleaning machine so that it can be alternatives for convention floor cleaning machine. The convention floor cleaning machine is most widely used in airport platform, railway platform, hospitals, bus stand, malls and many other commercial places. The construction and operation of this system is easy and anybody can operate this machine easily. It make necessary to need of some safer and efficient cleaning system, which could provide cleaning on ground in less time. The overall cost of this machine is less as compared to other. Such type of machine is widely used for this purpose but they are working under different mechanisms. In modern days floor cleaning machine are getting more popular for cleaning lager floor area in minimum time

*Index Terms: cleaning time , pedal operated etc.*

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#### 1. INTRODUCTION

Effective cleaning is help to protect the health of the human beings directly and indirectly. In recent years, most of the people prefer to use trains or buses for travelling and hence these places are mess up with chips covers, water bottles etc. Hence, it is needs to clean the bus stands, hospital and railways stations at regular interval. In recent years, automatic floor cleaning and robots are getting more popular because of lack of workers. However in India, unemployment is more and hence there is a need to develop manually operated floor cleaning machine in which labour can be include our self to earn something. Manually operated cleaning system works without any external source i.e. electricity, petrol, and any other fossil fuels. It operated only on human effort. It consist mope and scrubber. The energy from the pedal is transferred to the rear wheel via a slider crank mechanism. An individual can generate four times more power (1/4 HP) by pedalling than by hand-cranking. But at the rate of (1/4 HP), hand-cranking is continuous pedalling can be served for only short periods, approximately 10 minutes. However, if pedalling is done by leg half of this power (1/8 HP), it can be sustained for close to 60 minutes. Power capability depends upon age too. Many of floor cleaning machines are available but we developed machine is very simple in construction and easy to operate. Anybody can operate this machine easily. Hence it's terribly helpful in hospital, any large area space. Time taken for cleaning is less

and the cost is less. Maintenance cost is less. Much type of machine is widely used for this purpose.

#### 2. PROBLEM STATMENT

Large commercial areas like railways station, shopping mall, hospital, industrial factory etc. Often make used electric cleaning machine to clean floor areas while many companies offer attractive deals and specification, there are several problem associated with the use of electric cleaning instrument .One disadvantage is the absolute dependence on electricity for the use of machine. It is not possible to provide electric plug point every few meter as that would increase the electric wiring cost by a significant amount.

The aim is to find a solution to above problem by design and fabricating of manually operated floor cleaning machine that makes no use of electricity.

#### 3. CONSTRUCTION

The main part combining to perform the overall structure are discussed below.

**3.1.THE MAIN FRAME:** The main frame is designed especially to serve in purpose of overall floor cleaning the whole structure is made up of the heavy gauge square iron

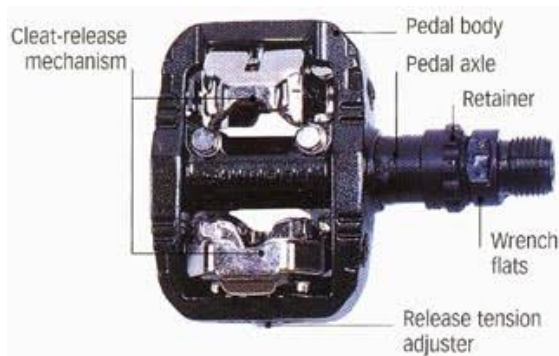
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pipe so that it may handle and bear the load all the equipment that are to be fitted to complete the whole structure.

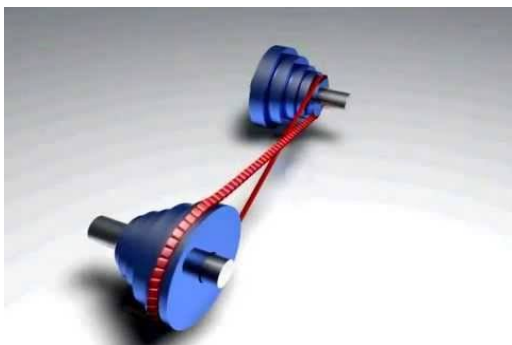
**3.2.FRONT AXLE:** The front axle is connected to steering mechanism and hence for the rotation of the machine they align themselves through the steering mechanism.



**3.3 PEDAL AXLE:** Pedal axle used in the especially design axle on which the pulley and free wheel is connected to the rear gear through the chain drive. This pedal axle has to attach pedal to it.



**3.4. CROSS BELT:** The application of the cross belt reduced the bulkiness of the mechanism in order to transform to motion from one axis to the other perpendicular axis. Many cross belt application can be seen in varied machineries.



**3.5.CHAIR:** The chair is placed at a position where the worker finds him comfortable for performing his task every

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part of the machine such as pedal's steering etc. are under reach of the person.

**3.6.SPROCKET:** Sprocket and sprocket –wheel is profiled wheel with teeth that mesh with a chain, track or other perforated or indented material.



**3.7 PULLEY:** A pulley may be a wheel on axle or shaft that's designed to support movement and alter of direction of a taut cable or belt, or transfer of power between the shaft and cable or belt.



**3.8. WATER TANK:** It is placed in the space which provides the water to the scrubber brush and its size may be adjusted according to the size and the load carrying capacity of the frame of the cleaner.



**3.9. SCRUBBER:** Floor cleaning device may be straightforward tool like floor mops and floor brushes or during a sort of walk behind or ride on machine to scrub larger floor areas by injecting water with cleaning solution, scrubbing, and lifting the residuals off the ground.



**3.10.MOPE :** A mop is a mass or bundle of coarse strings or yarn, etc. Or a piece of clothes, sponge, or other absorbent material, attached to a pole or strick. It is used to soak up liquid, for cleaning floors and other surface, to mop up dust, or for other cleaning purposes.



#### 4.WORKING

Many of floor cleanup machines area unit out there however we have a tendency to developed machine may a very simple in construction and easy to operate. Anybody can operate this machine easily. Hence it's very useful in hospitals, any massive space house. The time taken for cleanup is very less and cost is also very less. Maintenance cost is less. In our project we've made the machine to control in a fully mechanical manner. The floor cleaner is simple in a construction and simple to operate, anyone will operate it. Without any prior training of issue any kinds with safety Machine carries with it rollers, water tank, sprocket & chain mechanism, scrubber, drive wheel, and mope etc. The cleaning fluid is poured until the point that the tanks are filled. Impelling the lever opens the valve. Cleaning fluid from the tank spills on the ground. After the required sum is conveyed, the lever is discharged. The mope gets drive from the development of wheel through pulleys and belts. The mope applies weight on the ground, once the agent bar is unscrewed and therefore handle is moved the expected way to clean the adequate territory. Again the lever is worked to supply cleaning fluid at no matter purpose needed. This procedure is rehashed, so floor is cleaned well. Themoped keeps the harms on the mosaic, marble floors and gives smooth surface complete and sparkling.

#### 5. CONCLUSION

In this project we have described a new concept of cleaning as well as exercise with the help of a new model of floor cleaning machine which is combination of pedal operated bicycle . It can be used in auditorium and mall or anywhere on plane surface without use of fuel. The machine will proof to be a future cleaning instrument as no fuel is used for travelling through this and it is pollution free. Manually operated floor cleaning machine is an alternatives for an automated floor cleaning machines during power crisis.

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