Drain Dust Collector

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***Absract*-Wastewater its defined as the flow of used water from home, businesses, industries, commercial activities and institutions which are subjected to the treatment plants by a carefully designed and engineered network of pipe .This type of wastewater is classified and defined according to its sources of origin. Typically 200 to 500 liters of wastewater are generated for each person connected to the system every day. the amount of flow handled by a treatment plant varies with the time of day and with the months of the year. The processes reviewed here include both those that remove pollutant dirts in wastewater and those that vanishes them. Using a wastewater treatment technology that remove, rather than destroys, a pollutant will give a treatment remains.**

INTRODUCTION

Water is a basic necessity of humans and all living beings. There is a plenty of water on earth but that is not suitable for humans use. Clean water is more important if used for some hazardous and disease. As long as the draining system is considered the function of the main drainage system is to collect, transport and dispose of the water through an outfall or outlet. Impurities in drainage water can be only like empty bottle's, politeness bags, papers .etc. these impurities presents in drainage system can be deigned that will automatically throw out wastages and will keep the water clean. This project designed to keep clean the drainage system and help the smooth working of the system. this project automatically cleans the water in the drainage system each time any wastage appears and this form an efficient and easy way of cleaning the drainage system and preventing the blockage. It also reduce lab our and improves the quality of water that is cleaned. If the garbage are allowed to follow the will end up following down to recreational sites where they are burnt in a way of getting rid of them, there by causing climate change. The drainage system are cleaned when there s no water in them i.e. when it is not raining, but when it is raining the drainage system are cleaned when there is no water in them i.e. when it is not raining, but when it is raining the drainage system cannot be cleaned because of yhe harsh conditions of the rain which no one would volunteer to endure to ensure garbage does not ener into the drainage system.

WORKING PRINCIPLE

The machine has to be first placed into drainage and then the hand wheel will be rotated in clockwise direction. Hence the rotating motion will be transmitted form hand wheel to chain sprocket, which is placed and move along with it. Connecting rod it's also attached with the chain sprocket by using of the welding process. Connecting rod also having forks to take the waste from downside of the drainage to upper side. Filter will be placed in a inclined place. it's having a holes used to remove the waste from waste water. Storage tank will be clamped backside of the machine. When a bottom side moves the fork to collecting the wasted particular then we have rotating the hand wheel to help to move the waste particles in the waste collector.

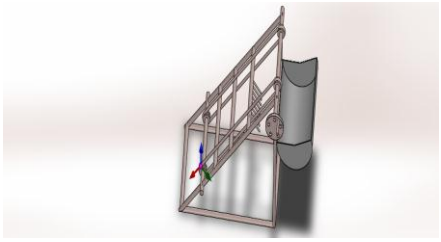


Fig.no.1.drainage waste cleaneer

TERORY AND CONCEPTS

A. Definition

Waste water is defined as the flow used water from homes, business, industries, commercial activities and institution which are subjected to the treatment plants by a carefully designed and engineered network of pipes. There are large No.of machine used for removing out the wastes from drains.

B. Problem statement

Every dynamic spring is subjected to these constraints where variation of forces and alignment takes place. to find a solution for the problem of water logging due to plastics, thermocol, metal, etc. To treat problems like malaria, typhoid, etc. Caused due to water accumulation.

c. past research

*B*y doing some research in the past we can say that it is seen that major facts that affect the strength of the machine are design parameter, material selection, raw material defect, and surface imperfection. It is seen that design parameter i.e. operatic modes, operating temperature, and imperfection, as we seen as temperature increases the strength of material decreases.

DRAINAGE WASTE COLLECTOR

A. Objectives

The main objectives of this project to minimize or overcome the problem which can faced in bigger machine. Also increased the dumping rate of waste. And help to operator do easily work.

The purpose of selecting drain waste collector machine are is follow:

- simplicity of design and control.
- This type of machine are easy to operate and less time consuming.
- Evaluate the effectiveness of alternative drainage design and operational practices, to reduce nitrate-n losses from drained agricultural lands.
- Assess the impact of various soil and crop management practices on reducing nitrate-N loadings to subsurface drains.
- Assess for further research in other aspects of water quality from drained agricultural lands, including the emerging issue of pathogens and phosphorus from manure applications.

B. advantage of machine

- Low-cost drain-off solution if drains already exist.
- Construction material are often locally available.
- Creates employment (construction and maintenance)
- It is portable

C. Application of machine

- It can be used in BMC
- It can be used to separate plastic, thermocol from sewage
- It can be used in plastics industries.

D. machine specifications

- Sprocket
- Chain
- Hand wheel
- Waste collect box
- Fork shaft
- Ball bearing

E. components and material selected

The components used in this drain waste cleaner are hand wheel, upper and lower shaft, ball bearing, backside waste bin, adjustable plate, chain drive, the material used for mild steel for frame, for ball bearing the type of bearing used is pillow block ball bearing made of C.I galvanized steel is used for waste bin.

C. Modifiction

Our project is simply a drainage waste cleaner machine, which is operated following different modification can be doe to improve the output and efficiency, we have use a hand wheel, adjustable plates, backside waste bin, single plates clutch, springs, this machine can be placed inside the drainage pipe to remove all the wastes like plastics, thermocol, etc.

LITERATURE SURVEY

System and scientists	outcomes	Drawbacks
Program logics control(JIANG Jing and ZHANG Xuedong 2014)	Automatic control of sewage treatment	It is does not depend on deposited sludge of the drainage system
Akio Got and Kazuyuki Yamasaki 2104	By using of microorganisms produced the toxic gases and not toxic gases	Gases effect on humans beings
Drainage pump monitoring and system(WU Jing CHEN, Guo jie 2014)	Collection of operation parameters of underground drainage pump and automatic control startup and shutdown of drainage pump	It does not gives the problem solving procedure
Wireless real time system Yin Haling Xu Zuxin 2014	In this defined only for the monitoring of the drainage system	It does not define how to control the drainage water
Wireless real time observation system Wan Juan 2104	It show how to control storm drainage so as to reduce dry weather pump discharging	

METHODOLOGY

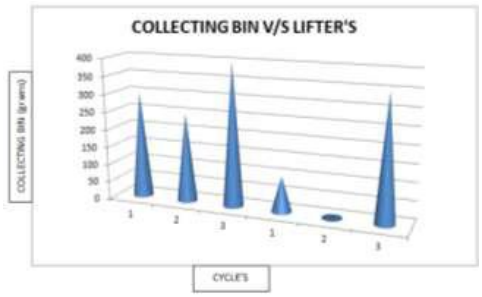
The device is place across a drain so that only water flows trough the lower basement. Floating waste like bottles, plastics cans, covers…etc. is lifted by lifters which the sprocket wheel which is driven by the motor runs the chain starts to circulate making the lifter to lift up. The wastage material are lifted by lifter teeth and stored in storage or collecting bi. Once the collecting bin is full, the waste materials are removed from the bin.

BILL OF MATERIAL

PARTS	MATERIAL	QUANTITY
Sprocket	Stainless steel	4
Hand wheel	Cast iron	1
chain	Stainless steel	2
shaft	Mild steel	2
Fabrication of lifter	Mild steel and G.I steel	2

RESULT AND DISCUSION

- Time taken by each lifter to lift each object from bottom to top is 11.46 seconds.
- Min time take by collecting bin to fill completely is 1 day.
- Quantity of waste collecting in the collecting bin is nearly 8-9 Kilograms.



While considering the above graph collecting bin vs one complete cycle indicates that the rate of lifter lifting waste is directly proportional to the storage of waste in the collecting bin.

ADVANTAGES:

- These cleaners are easy cheapest way to fix drainage problems.
- Easy to operate as no special skill is required.
- Large amount of garbage will collect which can be re manufacturable.

DISADVANTAGES:

- Small vibrations will occur.
- In order to avoid vibrations the machine should be properly foundation with the floor.

APPLICATIONS:

- It is used almost in all type of drainage.
- Project to use this in efficient way to control the disposal of wastages and with regular filtration of wastage.

CONCLUSION:

- In the treatment system of drainage waste water control by the hand wheel,rollerchain and sprocket,lifter and the collecing bin to achieve semi-automatic control of sewage waste water treatment.
- Drainage from industries is treated through these project to meet the national emission standards, with stable operation, low cost and good effect.
- Drainage waste water control is treated by this method to irrigate plants, clean toilets etc,..

REFERENCES:

1. International Refereed Journal of Engineering and Science [IRJES]ISSN (online).
2. http://en.Wikipedia.org/wiki/Drainage_systems