

## “TANK CLEANING MECHANIAL MECHANISM”

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### ABSTRACT

A water tank cleaning mechanism is basically one of the cleaning medium. Generally we are all not aware of the crisis for water that is why we need to resolve it. Saving water for future will indulge in getting over the scarcity of water. This mechanism will help in overcoming the issues related to water tank used for the storing of water, by only cleaning the walls without disturbing the flow lines and cleaning it. As for sure until and unless it hasn't been discovered a full proof cleaning for tanks. By over viewing the total scenario of water usage, it has been seen that villages are still dry there is no water for the farms, farmers and their families hope for the best but still some areas are covered and some are still not influenced. The government protocols for saving water are acting now effectively, they have started cleaning rivers, stated with new enforcements to tackle the irrigation projects, using water only that much that it will do, etc. This mechanism is a similar model of a vertical milling machine. The difference is only that we can drill a hole or cut the things by a miller and with this mechanism we can clean water and the tanks.

WATER TANK CLEANING MECHANISM [WTCF] has a powerful motor mounted over the top so as that will rotate the blades on which the string/threads of cotton are attached with the help of plate. A shaft coupled with motor is the power transmission entity. It has a base over the back as the motor weighs heavy so to counter balance the weight of motor an the angles of steel 2 more balancing angles are provided in the front. a gear mechanism with sprocket of a bicycle having chain over it is used for the vertical and downward motion of the shaft. The angles have been set such that it perfectly fits in and help balancing. The cleaning plated can be changed according to the diameter of the tank.

### KEYWORDS

Bearing, pedestal, shaft, frame, belt, chain pulley, motor

### INTRODUCTION

WATER TANK CLEANING MECHANISM [WTCF] is a cleaning mechanism. It helps in cleaning the tanks. WTCF is a special purpose machine. It uses a power motor for power transmission and a shaft coupled with it. Shaft drives were introduced over a century ago, but were mostly supplanted by gears. Recently due to advancement in internal gear technology, number of

shafts have been manufactured and introduced. Shaft driven power transmission has a list of number of application. This shaft meshes with the coupling and then to the motor. For resisting the stresses pedestal bearings have been added in the mechanism to overcome the load difficulties in the chain transmission. The 90-degree change of the drive plane that occurs at the bottom bracket and again at the upper hub uses bevel gears for the most efficient performance, though other mechanisms could be used, e.g. Hobson's joints, worm gears.etc

### DATA COLLECTION THROUGH LITERATURE SURVEY

**Bearings:** pedestal bearing  
(6203) Internal diameter: 20 mm  
Material: chrome steel

**Motor:** speed of motor 1400 rpm, used for delivering power to base cleaning plate

**Shaft:** MS bar of 19mm diameter. Right bar used as it have advantage of having uniform diameter over its length.

Material: bead

**Angles:** 35mmx35mmx4mm, for the body of mechanism

### PROBLEM STATEMENT

#### WHY WE WANT TO CHOOSE THIS TOPIC.

If we look up to the nearby market then we'll find that the water tank cleaning machines are available in the market is very costly which is 2-3 times than the manufacturing of what we made. The tank cleaning mechanism should be cheaper and easily available in market.

We decided to find a solution on this problem and present it in the form of a project to minimize the cost and to maintain its strength along with its better outlook.

### PROBLEM IDENTIFICATON

As the cleaning base plate rotates the whole diameters so the tanks are cleaned but the problem with machine is if once set for a tank it cannot be changed it is specific for that tank only which it is built for **DEVELOPMENT OF OUR CONCEPT**

“Design and structure of our product is to ease the human efforts for cleaning a water tank.”

## MATERIAL USED

1. Motor-  
Specifications  
-  
KW- .37 H.P- ½ RPM-1400  
VOLTS-250  
MANUFACTURED-DIVISIONELE.  
SERVICE, RAJKOT-GUJRAT
2. motor carriage/array-600x200 mm MS
3. Coupler- CI 50 MM dia.
4. chain- 2 Chains welded 10 mm thick and 2 m long
5. Top angle- 200 mm length.
6. chain sprocket- standard bike sprocket [PULSAR]
7. circular wheel connected with the chain pulley- 400 MM dia. 40mm thickness
8. tank- 3 feet with diameter of 450 approximate
9. cleaning plate- 300 mm dia. x 10 mm thickness
10. base- 4 angles vertically welded,4 horizontally
11. steel angles-35mmx35mmx4mm
12. solid shaft-19 mm dia,4 meter long



Figure: Project concept

## Working:

1. It works on the principle of vertical milling method.
2. Since the shaft has pedestal bearings over it lessen the vibration and balancing aspect high.
3. The shaft is powered by the motor and can be operated by attaching switch.

## Conclusion

Identification and solving of the problem is being done in previous chapter. The use of this tank will help in saving the energy and hence man power. Semi-automated machine which can clean the tanks in 4-5 minutes time is worth time saving.

## Project Picture: Water Tank Cleaning Machine

Thus flex perforating machine is suitable for flex perforation in printing industry.

## Reference

- 1) Design Data Book.
- 2) Book of Design of machine element by Vinod Thombre Patil, Nirali Publication, June 2015.
- 3) The Book of Advance Manufacturing Process by P. K. Ambadekar, S. T. Ghan, and D. M. Dharmadhikari, Nirali Publication June 2015

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