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Lime powder marking machine

LPM machine

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Abstract — *Our machine uses chalk powder or lime powder for marking of line on ground or wherever as per requirement. It is a power less machine, only human effort is required to move the machine wherever line is to be marked. It is the modified version of road marking machine, road marking machine requires paint or liquidious colour to draw the line or mark the road surface. But our machine requires powder substance to draw the line. It can be used on large construction sites where marking is to be done, at that place our machine will be very useful and it will be fast process. Our machine does affect the environment , therefore it is eco-friendly*.

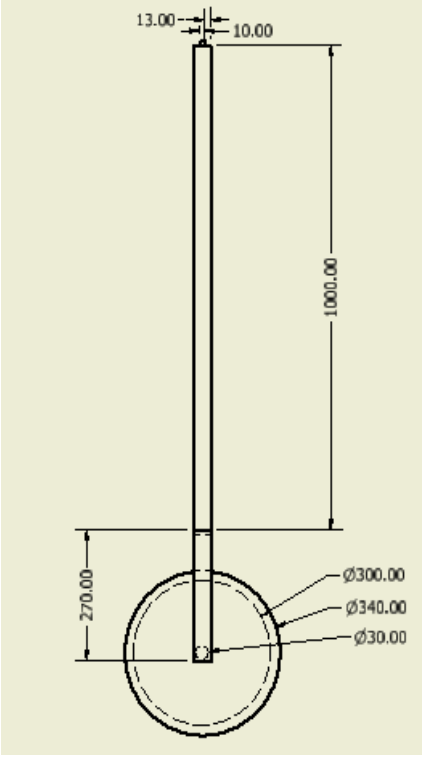
Keywords-*Powder, lime, marking, machine, ground, process.*

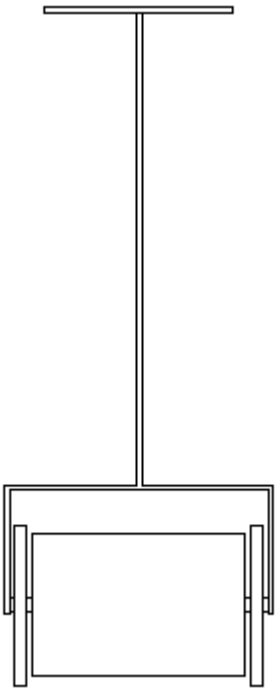
I. INTRODUCTION

When we draw line manually then the fine particles of lime powder gets mixed air, and when we inhale that particle we can face some respiratory problem, sometimes it can also affect our lungs. And as there is direct contact with our hand it will give rise to some skin diseases. To avoid these problems we have designed lime powder marking machine, there is no contact with the human body, therefore there is harm to the skin of human body.

The time required is less, very less human effort is required as wheels are provided to the machine, therefore the machine requires less time but its accuracy is more. We can obtain straight line as well as same width of line. We can also change the size or width of the line as we have used the valves at the exit of the machine. So we can increase or decrease the width of the line as per our requirement. And while drawing the line, due the change in width of the line there is the wastage of powder which is been eliminated by our machine

Our machine can carry 8 kg of powder in the conical tank at a single time which is its big advantage, so we can line till the 8 kg of line powder does not gets finished from the conical tank.





Our machine consists of cylindrical rotating drum, whose capacity is to carry 7 to 8 kg of powder. Two bearings are provided at both the end of the drum with fixed shaft. The line is by the rotary motion of the drum. When motion is provided to the machine, shaft remains stationary and cylindrical drum rotates with the help of wheels. Because wheels and cylindrical drum are connected with each other. As the machine moves in straight or linear direction, this linear motion converts into rotary motion and line can be drawn on ground.

Literature review

Marking process analyze in plate marking

Based on coupling and low damp ratio of the marking process, this paper presents a new approach for modeling system by dividing the whole process into several periodic dynamic processes, in which the new methods decouple the pressure system and position servo system and raise the damp ratio of pressure system and lower the inner-influence of paint guns. A theoretic analyses and digital simulation about the system of marking process are made at different paint pressure and different servo speed using Matlab. The simulate results give a better group of system parameters for marking machine in BaoSteel, which has good actual performance and the methods for improving the marking characteristic are given.

Design of automated fish marking machine

Marking of juvenile fish in hatcheries, before releasing into lakes and rivers, is an activity that is very valuable in fishery management. Samples of grown fish could be subsequently harvested and examined to collect data, that would be useful for many purposes such as predicting fish stocks, determining migration pattems of fish, and ascertaining the survival ratio of hatchery fish. A simple presence/absence type mark cm be applied fast and may provide a straightforward identification means for hatchery fish. This paper presents the design development process of an automated machine for spray marking of fish. The machine consists of three main modules: the feeding unit; the conveying unit; the spray marking unit; and the pigment recirculation unit. The paper will present the development and integration of these modules.

Advantages :-

1. Lines of various thickness can be drawn.
2. It will reduce time.
3. It can make accurate line thickness.
4. It is economical machine.
5. It does not make any noise pollution thus ecofriendly to the environment.
6. We can easily carry the machine.
7. It is easy to operate.

Application :-

1. School and college playground.
2. Agricultural field.
3. Construction sites.

Disadvantages :-

1. Human effort is required to run the machine.
2. Not suitable for long distance marking due to less capacity.

Mathematical calculation

1. Shaft :- Length = 572mm.
   Diameter = 24mm.
2. Drum :- Length = 450mm.
   Diameter = 300mm.
   Circumference = 942.50mm.
3. Thickness of drum plate = 2mm
4. Handle :- Length = 400mm.
   Thickness = 20mm.
5. Connecting rod :- Length = 1000mm.
   Thickness = 20mm.
6. Wheel diameter = 340mm.

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