

The Innovative and Quickest Method to Draw Patterns (Muggulu) or Rangavallikalu Easily Without the Slightest Strain

Vamshimohan Ledalla

SA (English), Zphs Wardhannapet, Wardhannapet Mandal, Warangal District

Abstract:

This article is an innovative and creative one with emphasis on contrivance design useful for women folk. The women strain themselves while discharging their domestic chores. Drawing patterns or muggulu is the traditional activity carried out by them, while doing so they may get effected by Sciatica, Cervical Spondylosis etc. A solution is provided by designing a Contrivance to draw the patterns easily based on the Fractal Formula of Fractal Geometry.

Keywords: Muggulu, Pattern die, Fractal formula, Dimension, Contrivance, grate

1. INTRODUCTION:

In our daily life Women folk generally perform multitudinous domestic chores. One of them is drawing coloured pattern (MUGGULU) by using flour or coloured powder. In all most all the houses this is an obligatory and mandatory ritual or holy tradition that linked with auspiciousness and carried out with utmost enthusiasm. After finishing or completing the Muggulu or Rangavallikalu, everyone will appreciate that creative work or design in front of the gate-way or front-yard or an entrance into the house. But this creative compulsion drags our women into episodes of pain and strain.

2. PROBLEM:

Women after bending, squatting and sitting for a long time on the ground or floor while drawing big and complicated muggulu or intricate designs will suffer from knee-pains, back-pains, hand-pains and neck-pains. In the course of time, women may get effected by SCIATICA (Nerve-Pain), CERVICAL SPONDYLOSIS (Neck-Pain) and ANKYLOSING SPONDYLITIS (Knee-Pain), these excruciating pains effect the over-all health of women and deteriorate their quality of Life.

3. SOLUTION:

A pattern die or a small pattern stamping made of metal or wood which has a rectangular base with a handle with press buttons that has lever action to throw the pattern or design on the floor which was already prepared by using the concept of Fractals in Mathematics. In mathematics, a fractal is a geometric shape containing detailed structure. This Fractal Geometry can be used to make complicated patterns related to Muggulu which were carved or cut on a piece of metal or on a plank and can be stamped on the floor by making the coloured powder to pass through the fractal design prepared by employing the Fractal Formula that repeat the fixed pattern and can be placed within no time and at once

on the ground or floor. Fractal formula, $D = \log N / \log S$ will be employed to make the different Muggulu. Then by using this device with plank containing the fractal design confined two-dimensional set up and long holder with buttons, women can draw complicated Muggulu or pattern within a fraction of seconds.

4. EQUATION

EXPLANATION

$D = \log N / \log S$

$N = S^D$ Applying Log on both sides, we have

$D = \log N / \log S$

Where $D = \text{Dimension or Power}$

$N = \text{the number of miniature pieces in the final figure.}$

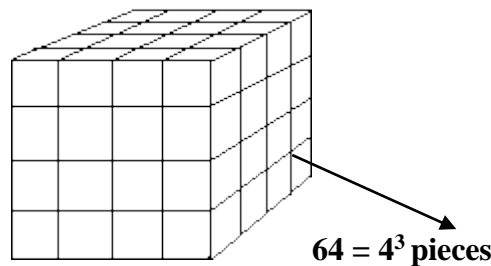
$S = \text{Scaling Factor or Magnification}$

For Example

$64 = 4^3$

$N = S^D$

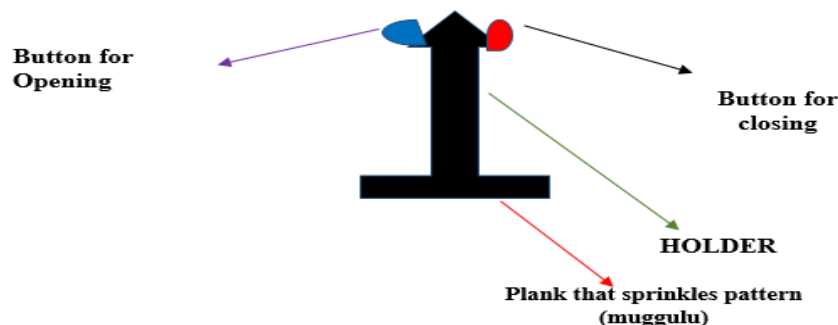
5. ILLUSTRATION OF CUBE TO REPRESENT THE EXPONENTIAL FORM OF FRACTAL FORMULA



The cube can be separated into $64 = 4^3$ pieces. Again, these pieces need to be enlarged (scaled) by a factor to 4 to generate the larger square. [1]

6. CONTRIVANCE ILLUSTRATION:

Contrivance is made by the application of Concept of Fractals to draw the patterns (Muggulu) quickly and different patterns can be placed in the sprinkling base. The Contrivance is designed by me and the illustration explains the working mechanism. The opening button throws the powder in the selected pattern through the grate at a stretch and closing button closes the grate or mesh plate.



WORKING PRINCIPLE:**Working Principle of the Muggu Sprinkler Mechanism****Components:**

1. **Holder:** The main structure that supports the entire mechanism.
2. **Plank (Sprinkling Base):** The platform through which the rangoli powder is sprinkled.
3. **Mesh Plate (Sliding Plate):** Controls the flow of the powder (inside)
4. **Blue Button (Open Button):** When pressed, it **moves the mesh plate**, aligning the holes and allowing powder to flow.
5. **Red Button (Close Button):** When pressed, it **moves the mesh plate back**, blocking the holes and stopping the powder flow.

Mechanism or Principle:

The blue button pushes or slides the mesh plate forward; the holes in the mesh align with the holes in the base plate. Powder flows through the holes, creating a Rangoli pattern. The red button moves the mesh plate back to its original position. The holes in the mesh and the base plate no longer align, blocking the powder flow. Powder flow stops, preventing any unwanted patterns. The mesh plate moves horizontally to open and close the holes.

Conclusion:

This device helps women to draw the muggulu comfortably without straining their bones or experiencing pain. It is very useful because when women are healthy, their families are healthy. When families are healthy, society remains peaceful, and when society is peaceful, the people are happy.

REFERENCES

1. "Self-Similarity and Fractals." *CS212: Introduction to the Theory of Computing*, Cornell University, 1998, www.cs.cornell.edu/courses/cs212/1998sp/handouts/Fractals/similar.html. Accessed 25 Jan. 2025.