

PLUGGED DICE

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Idea: Fred Horn
Design & Realization: Oskar van Deventer

www.shapeways.com/model/26753/plugged-dice.html?li=shopresults&materialId=6



www.thingiverse.com

*This is a short story
about a smart idea
and about solving
the question, "How
to realize that idea?"*

*Sometimes, the right
combination of
thinking powers
can lead to
marvelous solutions.*

There is that well-known Puzzle of Nine (shown at left)—1 x 1 x 3 sticks with dots on the sides, from which you must make a complete (and correct) large die. Being intrigued by that puzzle, I wondered if it was possible to insert a number of small round sticks into a cube to get the same result: a large correct die.

Of course not all of the sticks could pass through the die because you have 21 dots.

So my options were:

- to use 10 sticks starting from one side of the die going through to the other side, and
- to utilize a slightly shorter stick as a "key" to lock the other sticks from falling out.

My first attempt was to draw an example as one would normally do when designing a machine or other technical instrument. But I could not come up with a design where the sticks could 'pass through' each other within the same area inside the cube.

I started drilling holes into a wooden cube at certain angles trying to avoid this problem that occurred in the drawing phase. After many cubes that now looked like various pieces of cheese, I had to confess that this was too much for me—"Nice idea, no solution!"

Later, while discussing this puzzle idea with my friend Sjaak Griffioen, he immediately said: "Ask Oskar, he's the best at thinking three-dimensionally."

Thus, at the next gathering of the Dutch Cube Club, I approached Oskar van Deventer with this problem. He was intrigued but could not see an immediate solution and relayed he would look at it afterwards to see what he could do.

And then... silence. No reaction from Oskar. In the meantime, I worked on other ideas and put this one to rest in the drawer marked 'unsolved problems.'

After two years at another Cube Club gathering, Oskar approached me and to my surprise said: "I have solved your problem! Take a look at what became of the puzzle." And there was the Die, as pictured above.

Oskar's solution is a wonderful example of what "Thinking out of the Box" means. By turning the sticks from a linear movement to a circular one, a solution was made possible. His only problem was how to manufacture it. Luckily three-dimensional printing was available, but it was still expensive.

I was very pleased Oskar had organized a print for me so I could show the solution of 'my' problem to someone who could really think in three dimensions.

Nowadays 3-D printing is much more cost effective, so for the real puzzle buffs out there it should not be a problem to order this really difficult, but nice, puzzle.

AGPC