

Manuplating Bamboo by the Application of Heat

Design Exploratory Seminar

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Approval

This project report titled 'Manuplating Bamboo by the Application of Heat' by Tarun Karthick, 18U130011, is approved, in partial fulfilment of the requirements for Bachelors of Design Degree at the IDC School of Design, Indian Institute of Technology Bombay.

Project Guide:

Chairperson:

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Declaration

I declare that this written document represents my ideas in my own words and where others' ideas or words have been included. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/ data/ fact/ source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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Acknowledgments

I would like to thank Prof. Sandesh R for his constant guidance throughout the duration of this project.

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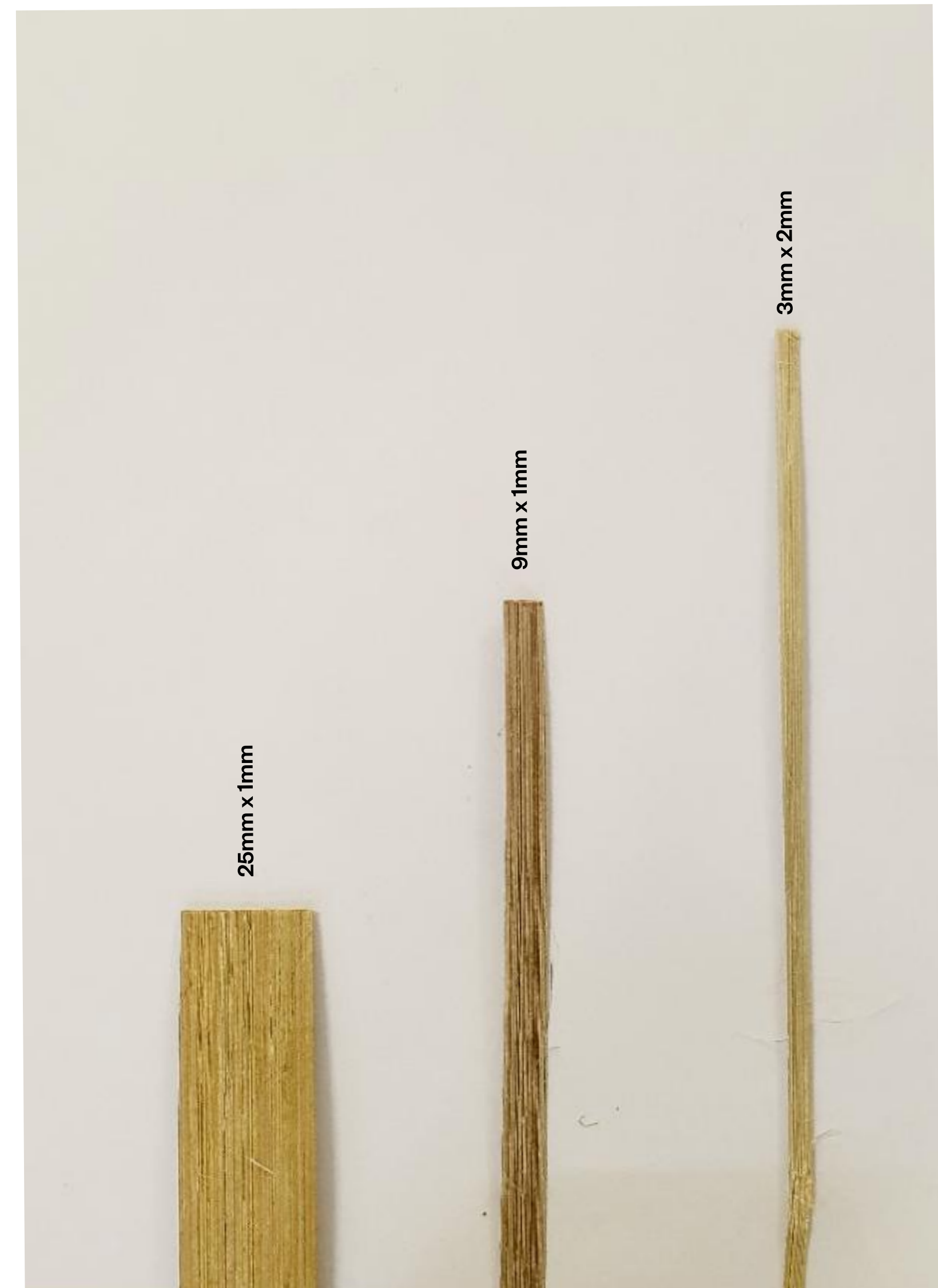
Abstract

The aim of the project was to explore the bending property of bamboo. The explorations led to the creation of the bamboo bending jig.

Dimensions of the strips

Following were the dimensions of the strips I chose to work with.(Find image on the right)

The main reasons for going with these dimensions were first of these were readily available at the bamboo studio. Also the kind of objects i had hoped to create required strips of such dimensions.



Bending Experiments

Method 1: Thumbpins

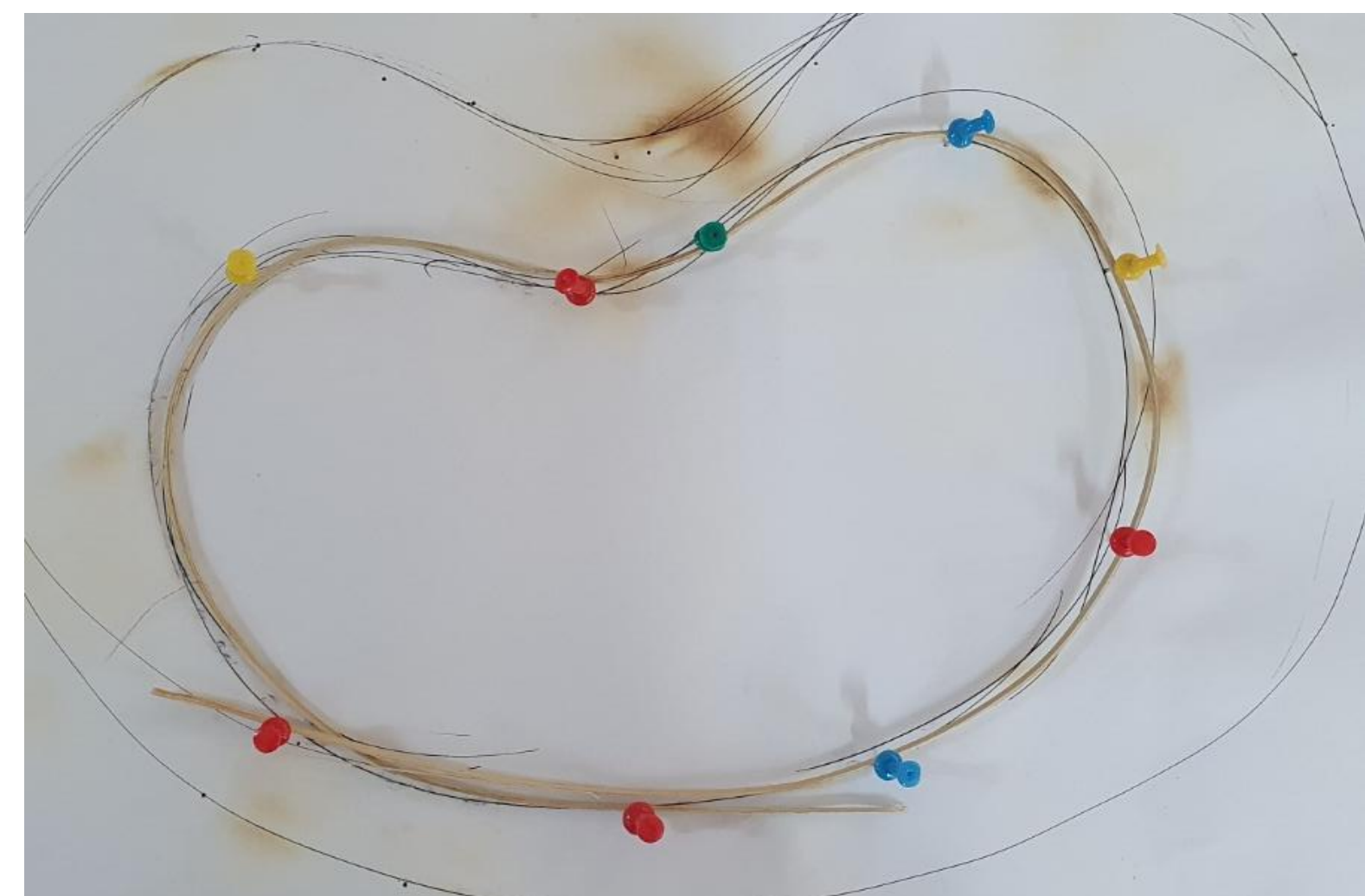
I started off by just pinning the strips down onto a plank of soft wood forming the desired shape. Followed by blasting it with the heat gun.

Cons.

Even though the strips were soaked over-night they were still very much springy. Which made it hard to pin them down into the desired shape.

Pros.

You could pretty much get the shape you desired.



Bending Experiments

Method 2: Sheet Metal

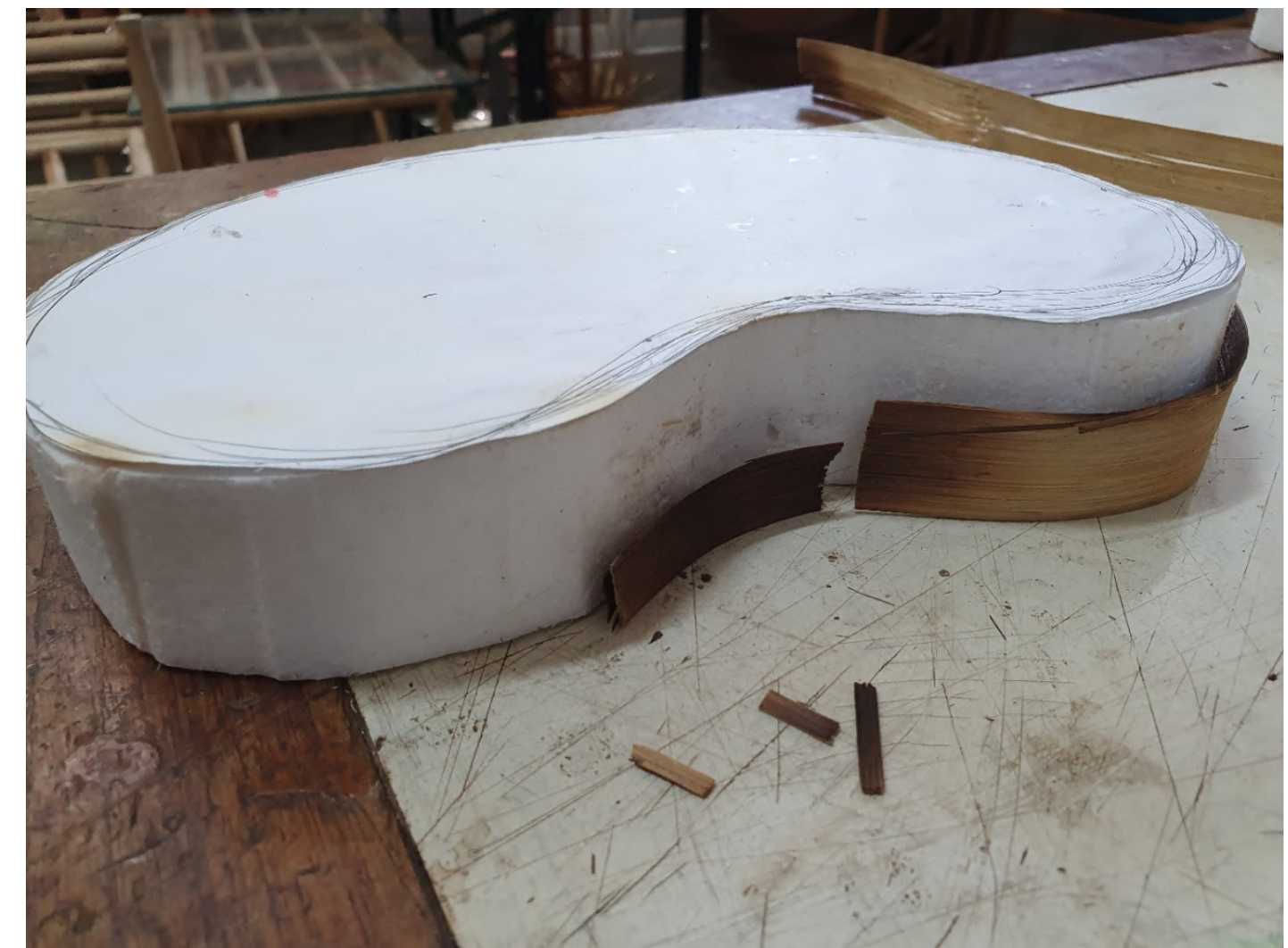
Cut out a block of xps onto the desired shape. Then wrapped it with a strip of sheet metal. Also made small metal clips to hold the bamboo strips in place. Once it was set i blasted it with the heat gun.

Cons

This method didn't offer as much flexibility as the previous one. Cutting out a block of styrene and wrapping it with sheet metal every time you wanted a different shape wouldn't be feasible.

Pros

It was easier to pin down the bamboo strips. Multiple strips can be bent into shape at once.



Bending Experiments



Bending Experiments

Method 3: Custom Pins

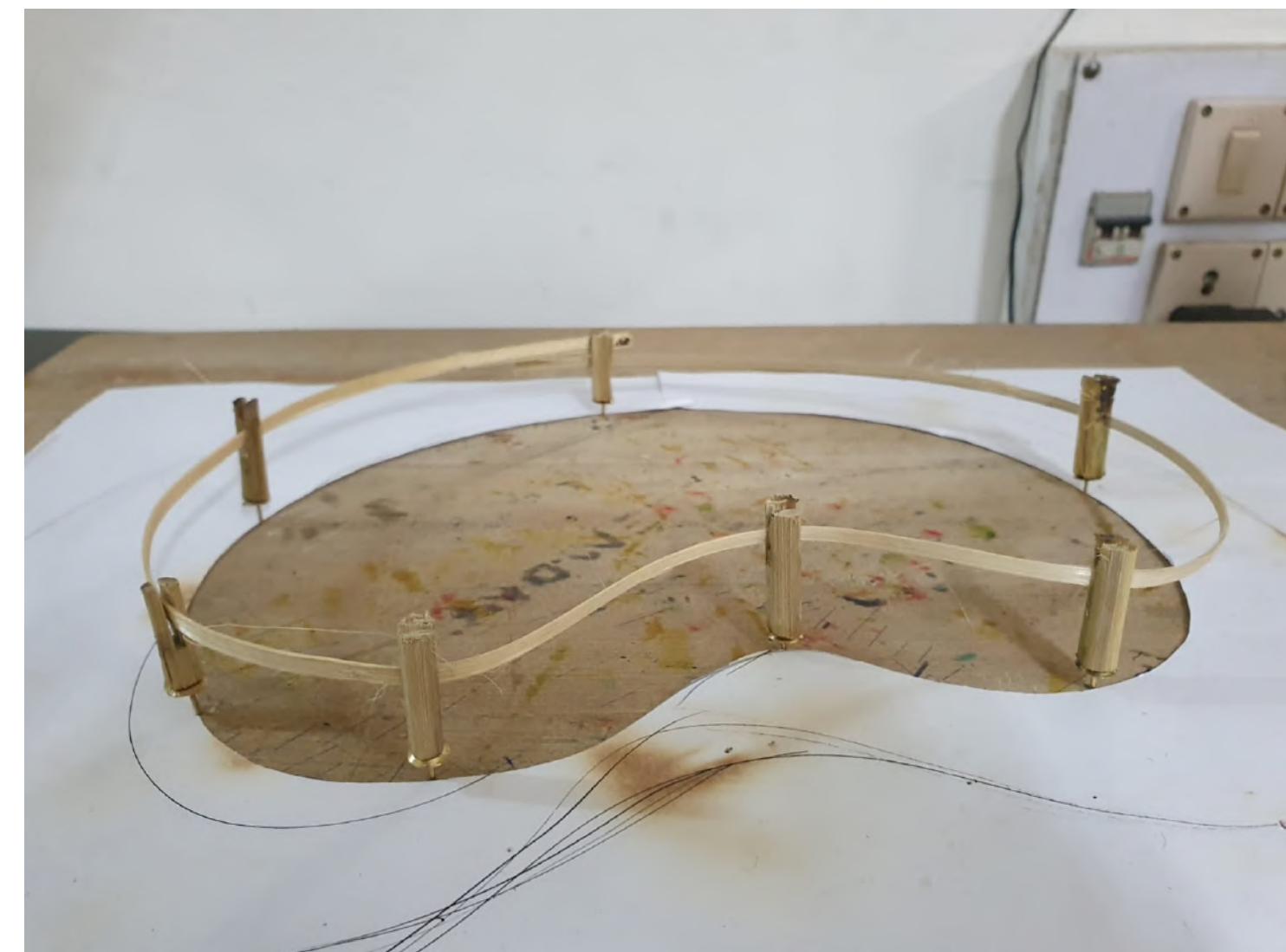
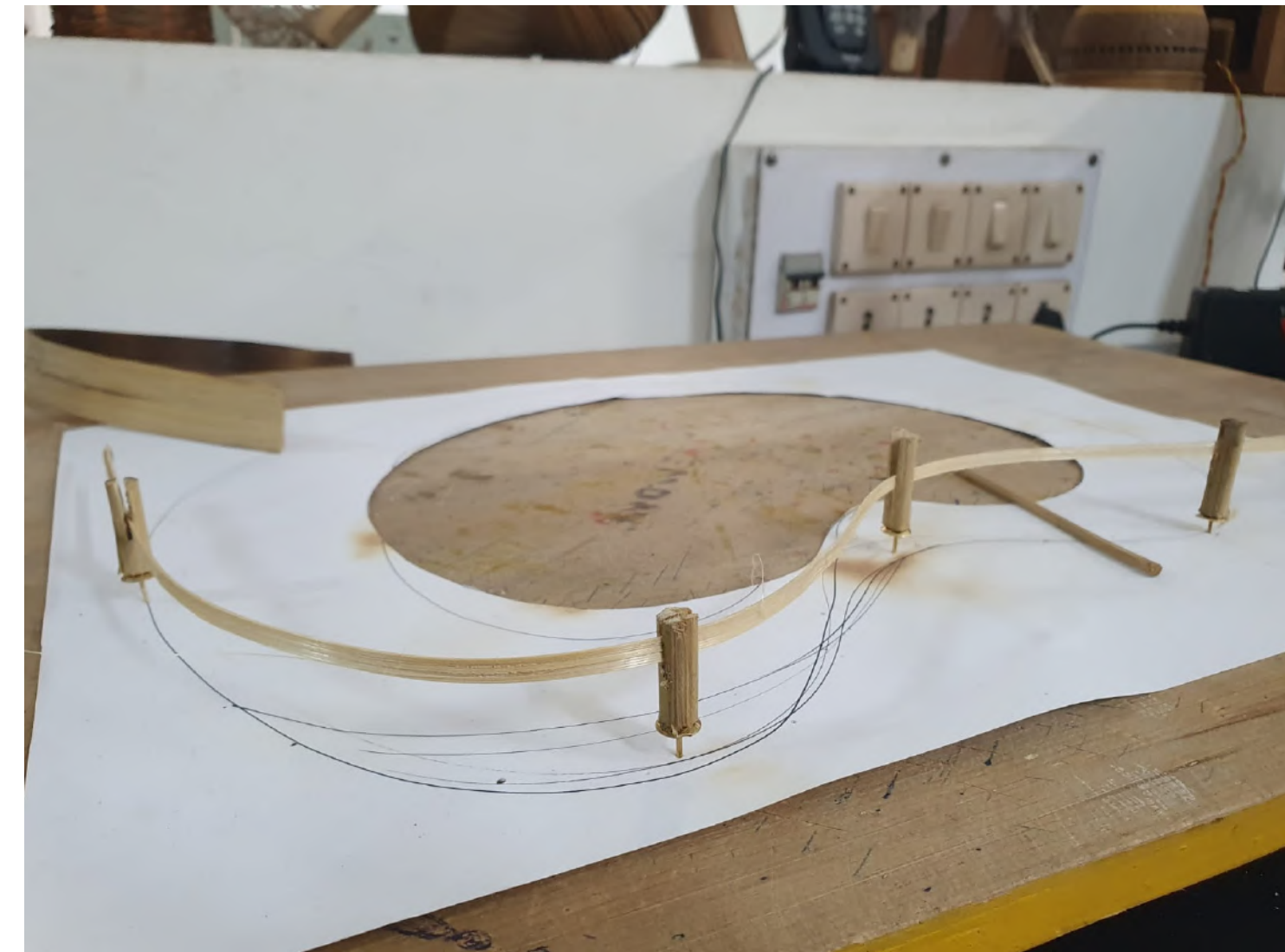
I liked the flexibility that method one offered so I went back to the drawing board to improve upon it. The customised pin has a slit into which the bamboo slides in, making it much easier to pin it down. The pins were first pushed down onto the plank to form the desired shape. Then the strips can be slid in.

Cons

Pushing the pins into the plank was not an easy job. They would often fall apart when the heat was applied as they were put together with feviquik.

Pros

Same as method one. You could pretty much get the shape you desired.



Bending Experiments

Method 4: Holed Bending Rig

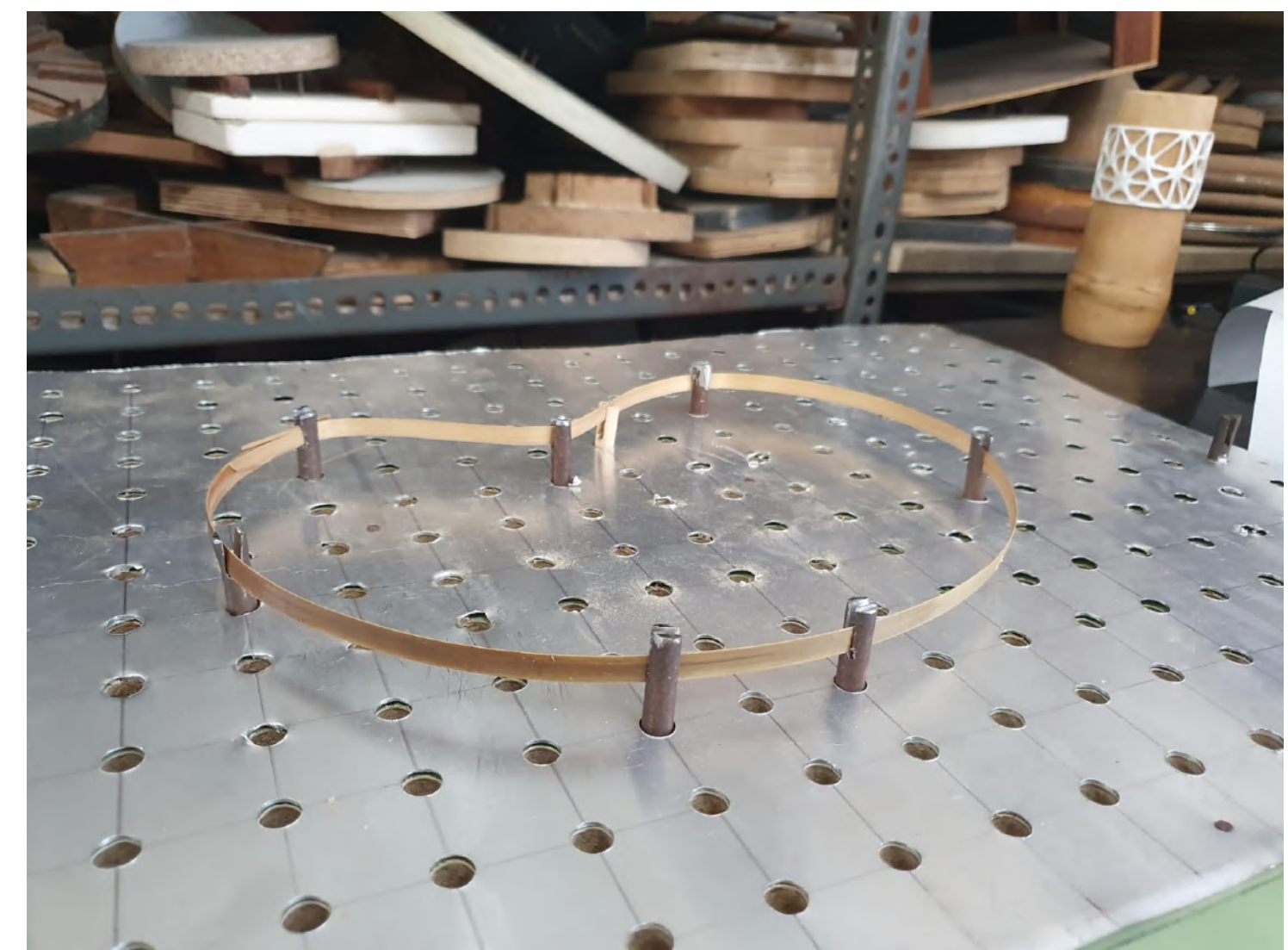
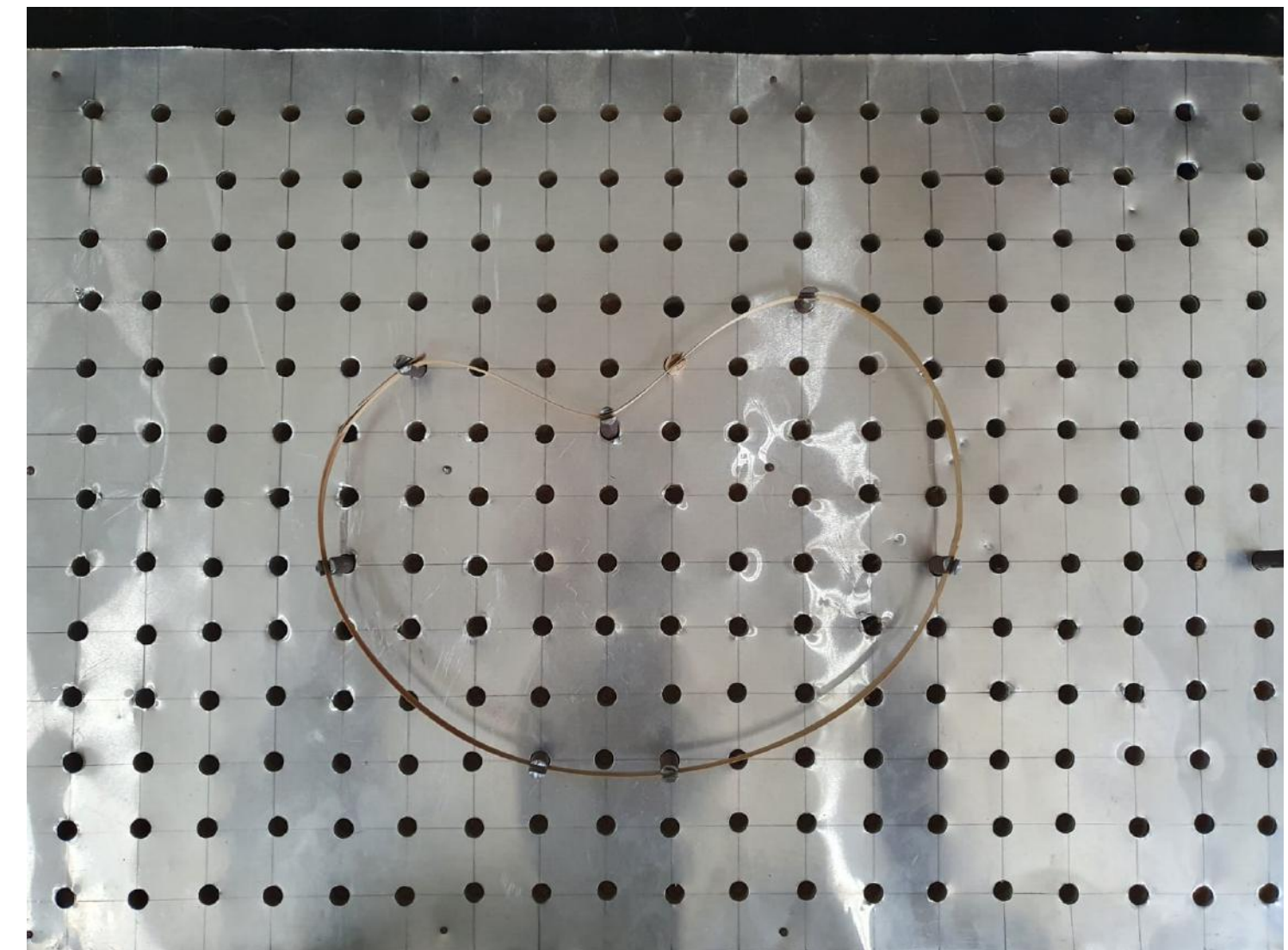
A piece of sheet metal was slapped onto a plank of plywood so that it doesn't burn on the application of heat. Holes were then drilled in 30mm by 30mm grid. As for the pegs a steel rod was cut into smaller chunks and slits were sawed into them.

Cons

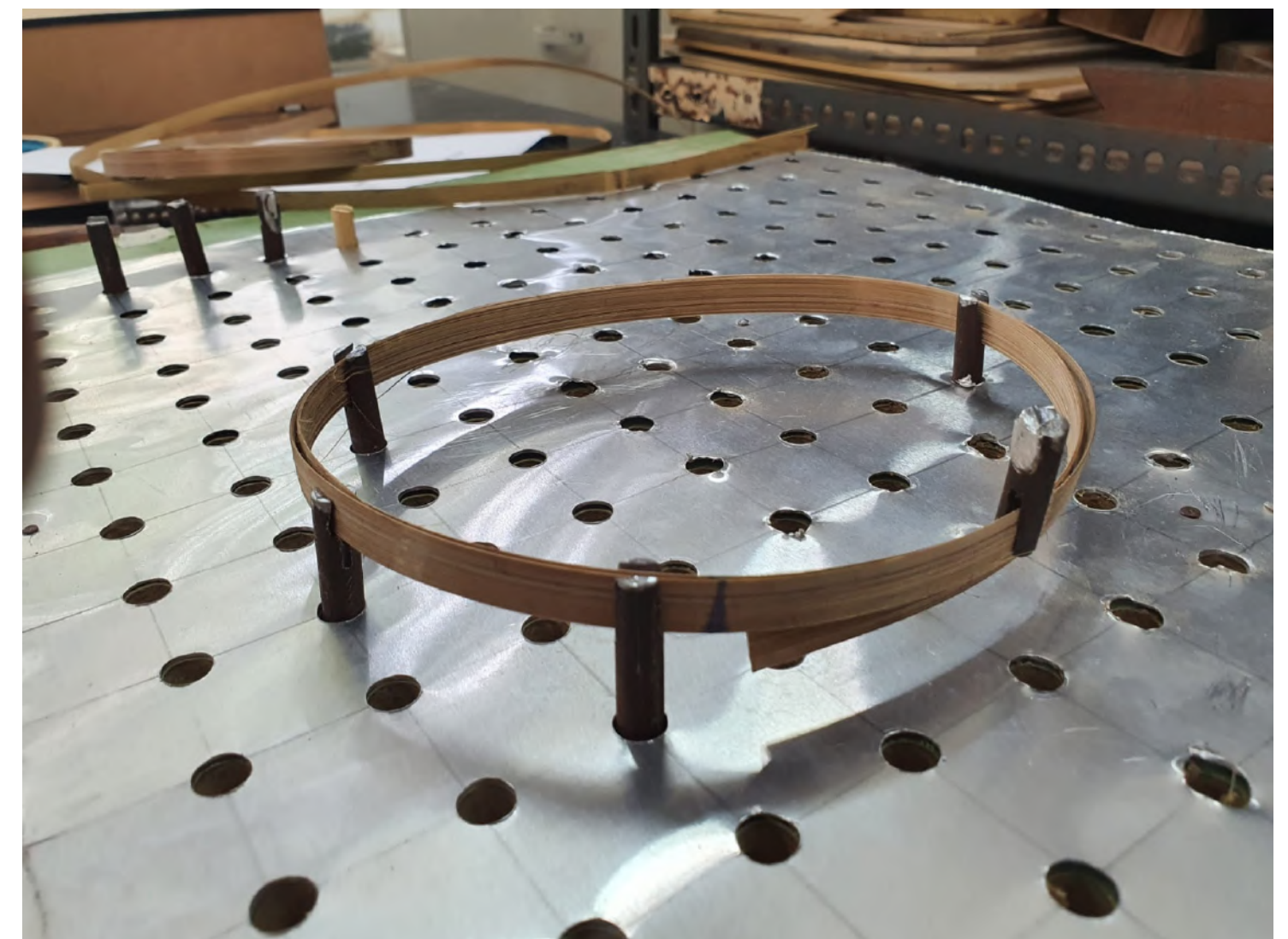
Doesn't offer as much flexibility as the previous method as the grid is fixed.

Pros

Same as method one. You could pretty much get the shape you desired.



Bending Experiments



Conclusion

Method 4, the bending rig worked better than expected. With some refinement can be used as a tool to quickly bend bamboo strips to the desired shape to create the desired form.

