



 2h30  ~100€

*Aurélien Pons, Kélian Leroy,  
Julian Carrey, Sebastien Lachaize*



# wooden frame

This project has been conducted by teacher-researchers Julian Carrey and Sébastien Lachaize, both members of the Laboratory of Physics and Chemistry of Nano-Objects, located on the National Institute of Applied Science campus of Toulouse. This user manual has been developed with the help of a transdisciplinary team : Bastien Sanglard, PhD student in solar metallurgy ; Aurelien Pons, designer and Kelian Leroy, environmental engineer.

As a result of Bastien Sanglard's PhD thesis, it was established that parabolic solar cooking is more environmental friendly than gas, electric or induction cooking. Also, it has been shown that the carbon footprint of such solar cookers can be reduced by replacing existing aluminum frames by wooden frames.

This user manual will help you build your own solar cooker's wooden frame with replaceable parts. Compared to regular aluminium frames found on the market, the wooden solar cooker has several benefits : it is less expensive, more eco-friendly and facilitates the adoption of your solar cooker.

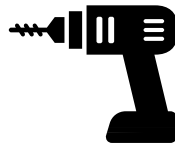
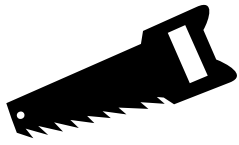
Given the eco-social dimension of this project and in order to promote the use of solar cooking among the general population, this user manual is made available under licence CC-BY-SA, which enables users to distribute, remix, adapt and build upon the material in any medium or format, so long as attribution is given to the creator.



Julian Carrey  
*julian.carrey@insa-toulouse.fr*

Sébastien Lachaize  
*slachaiz@insa-toulouse.fr*

# informations



adjustable wrench



Drill larger holes than  
the treaded rods

Ø7mm drill bit

(Ø9mm drill for 8mm  
threaded rods or  
Ø11mm for 110mm)

# tools



2 screws for the wheels  
Ø12 x 120 mm



2 wheels  
min. Ø125 mm



3 pieces of wood  
48 x 48 x 2400 mm



2 screws  
Ø6 x 60 mm



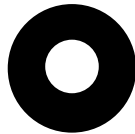
2 washers  
Ø6 mm



2 nuts  
Ø6 mm



12 threaded rods  
Ø\* x min. 160 mm



24 washers  
Ø\* mm

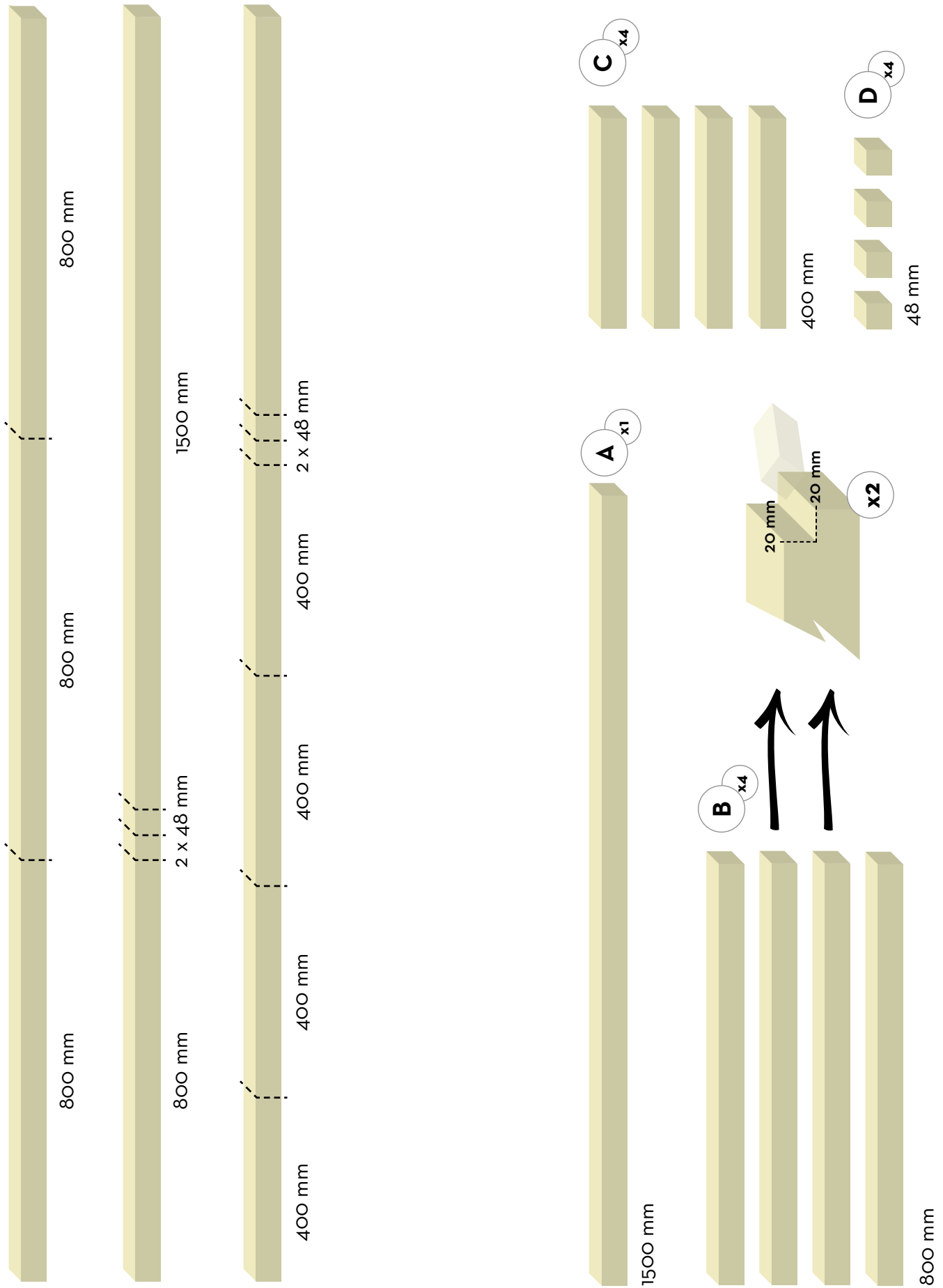


24 nuts  
Ø\* mm

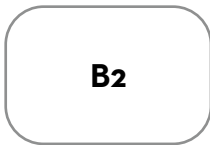
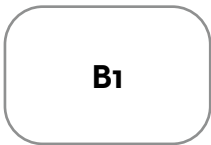
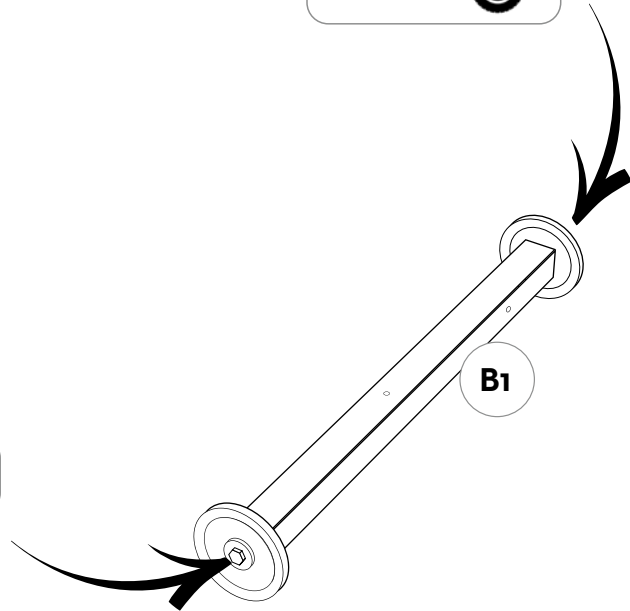
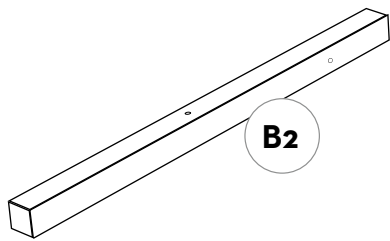
\*=Ø8 min. or Ø10 max.

# materials

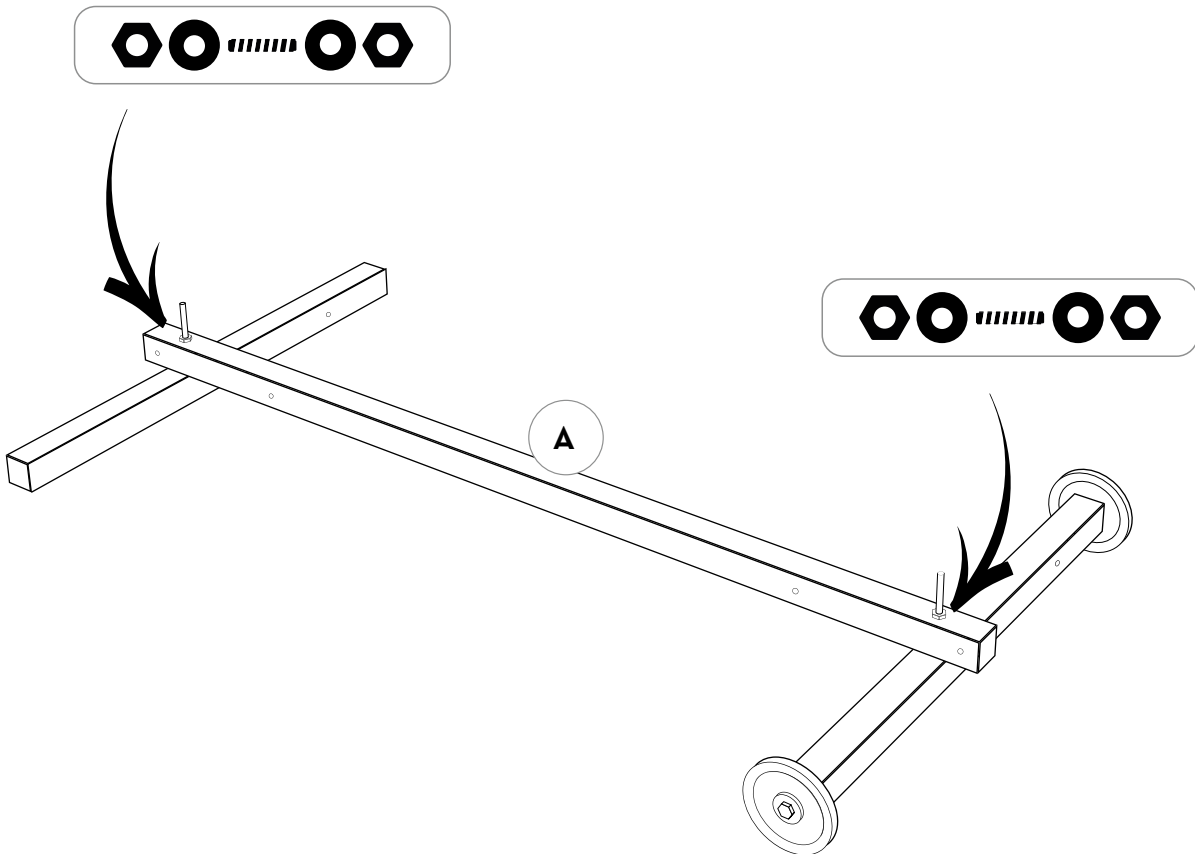
# cut the wood







# assembly



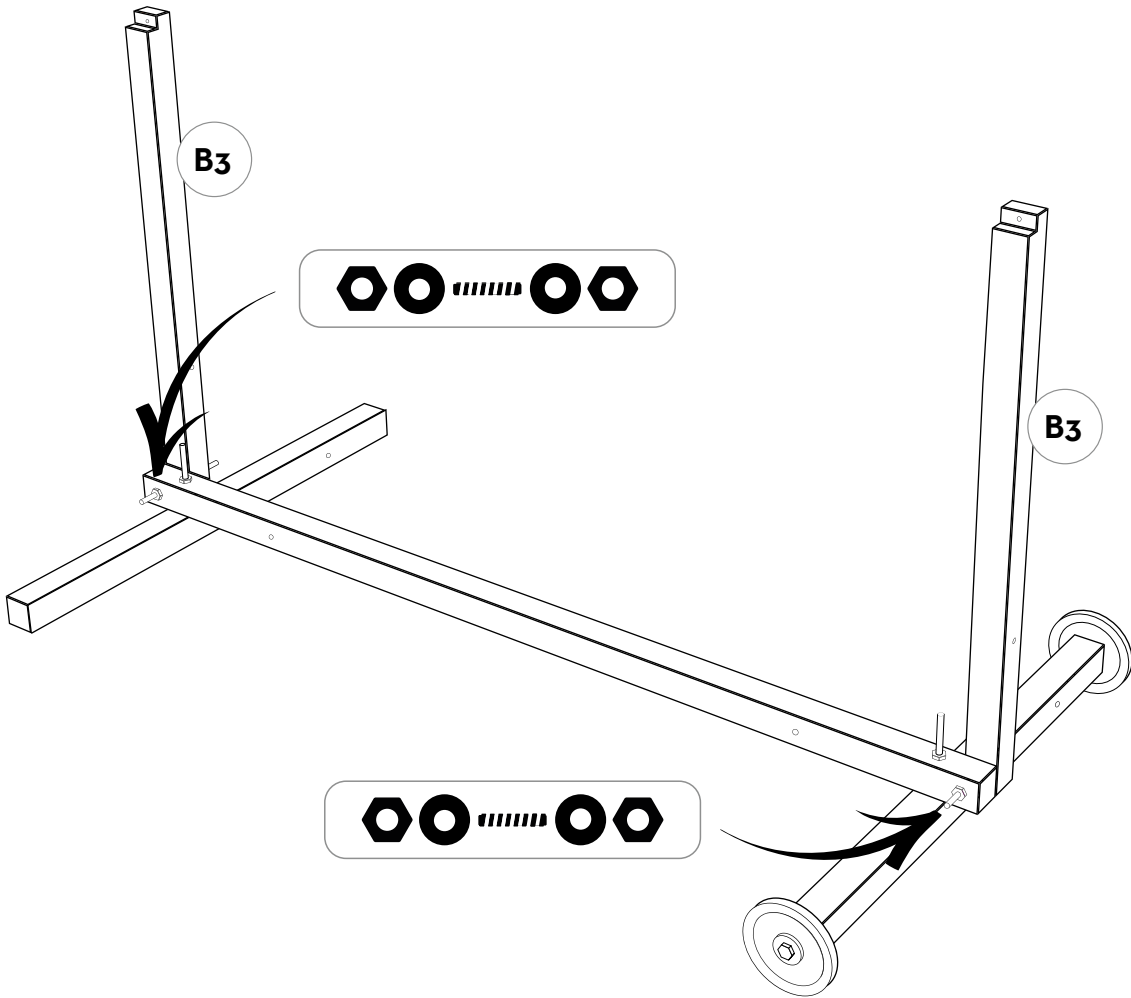
A

 2 threaded rods

 4 washers

 4 nuts



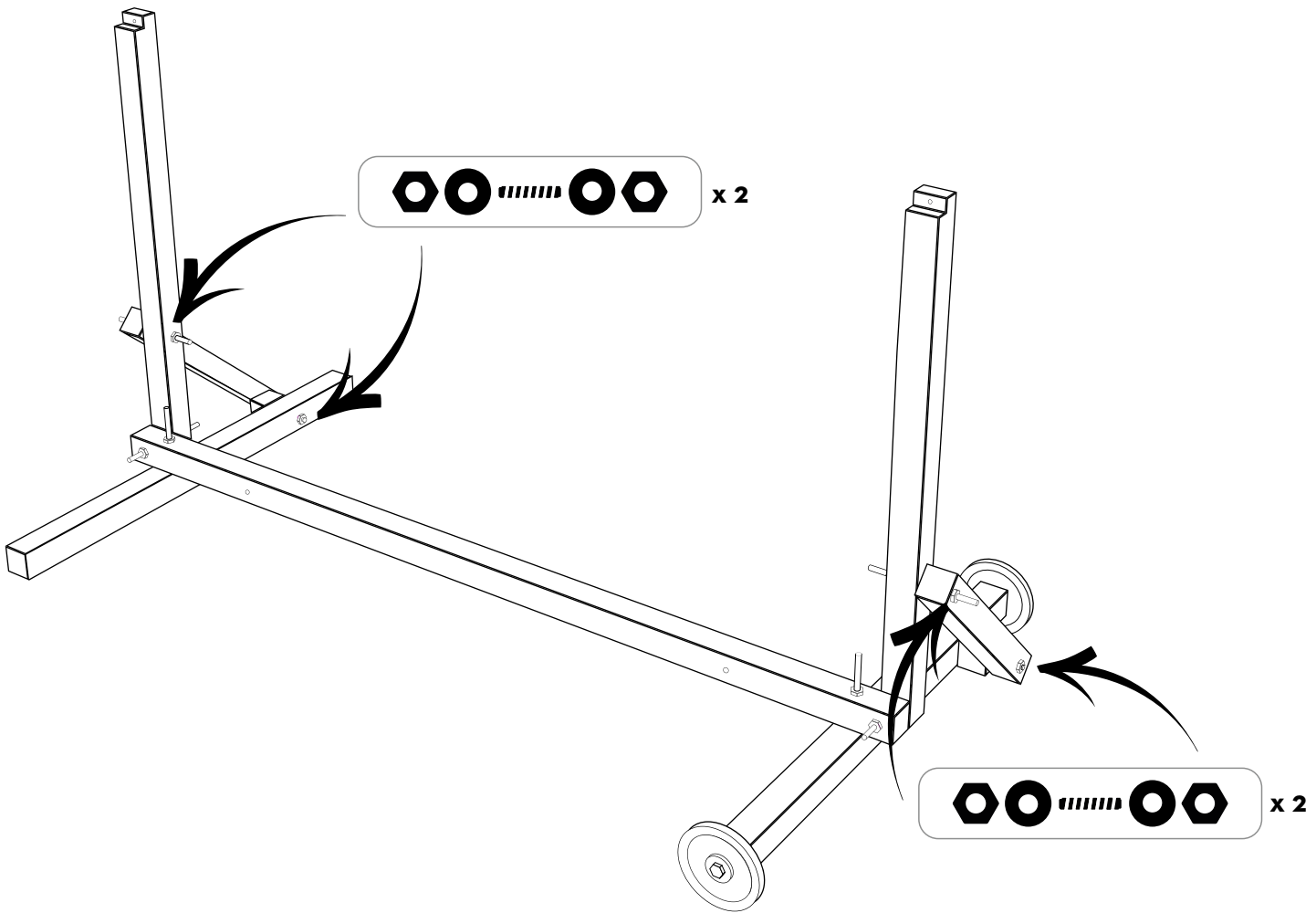


2 B3

2 threaded rods


4 washers

4 nuts




2 C

2 D

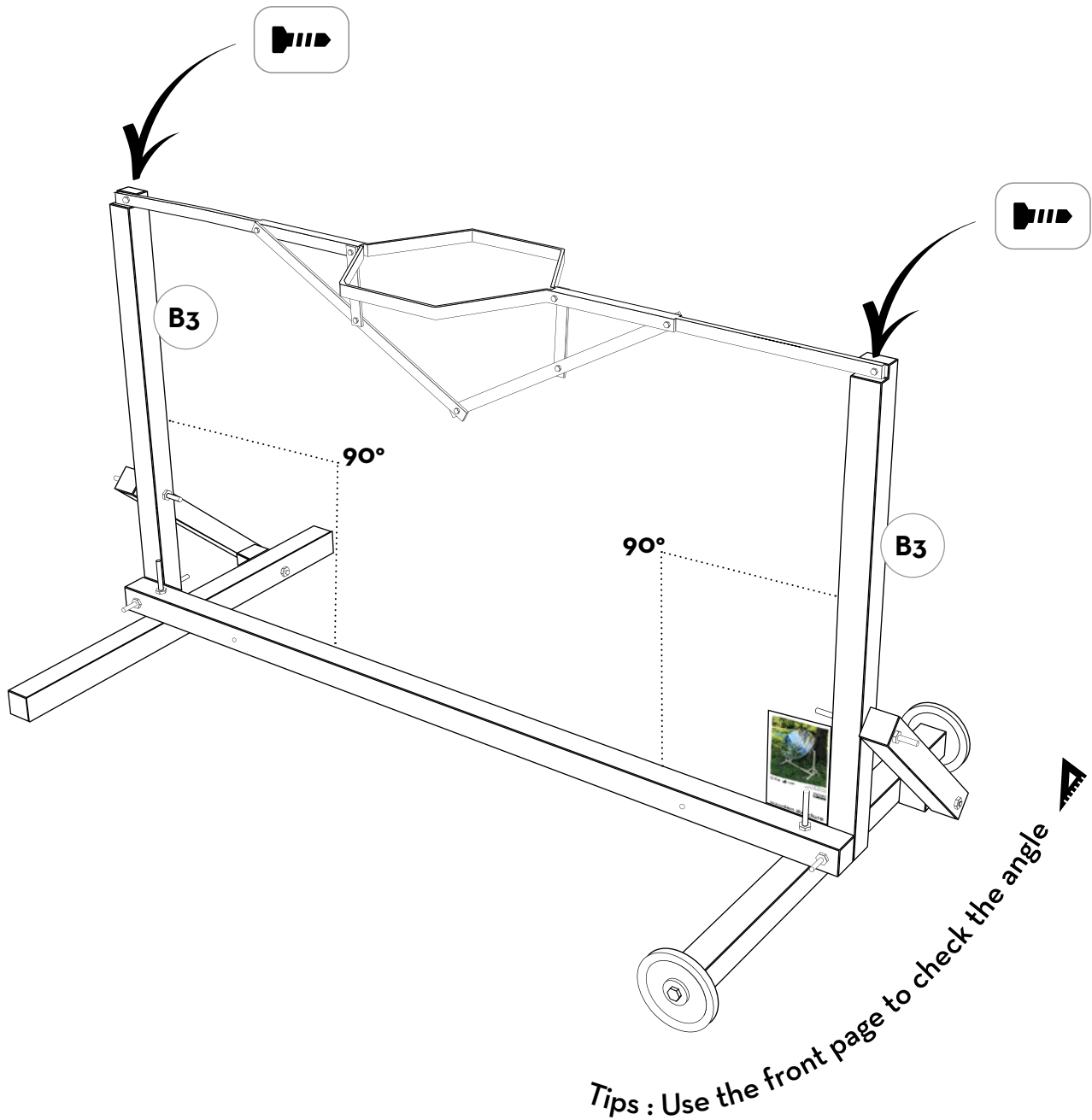
 4 threaded rods

 8 washers

 8 nuts



Because of the natural curves of the wood, the theoretical dimensions quoted may vary. Use your intuition to correct any discrepancies.



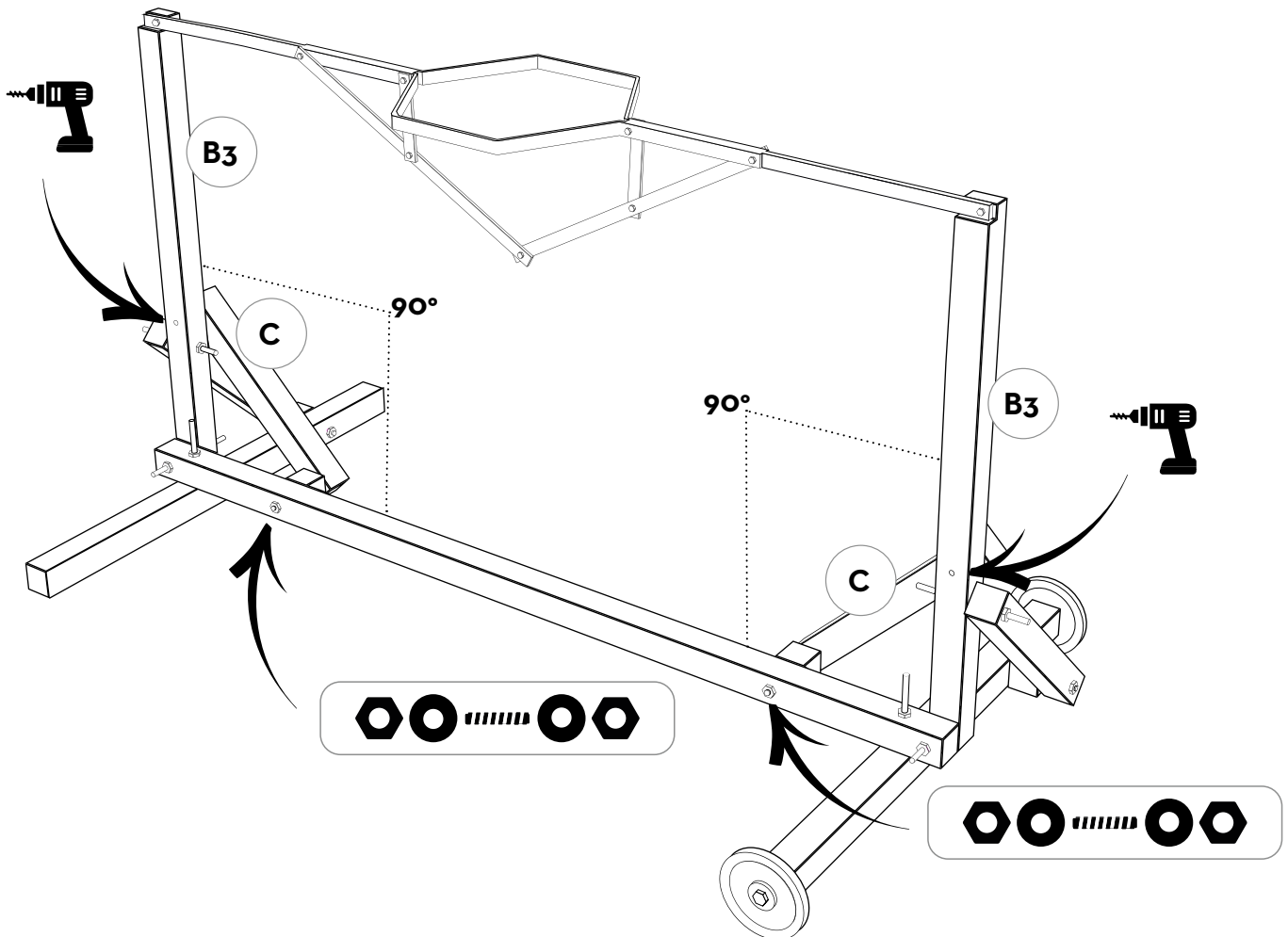
2 screws  
Ø6 x 60 mm

potholder

Position the two B3 at 90° from A

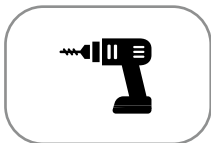


Because of the natural curves of the wood, the theoretical dimensions quoted may vary. Use your intuition to correct any discrepancies.



2 C

2 D

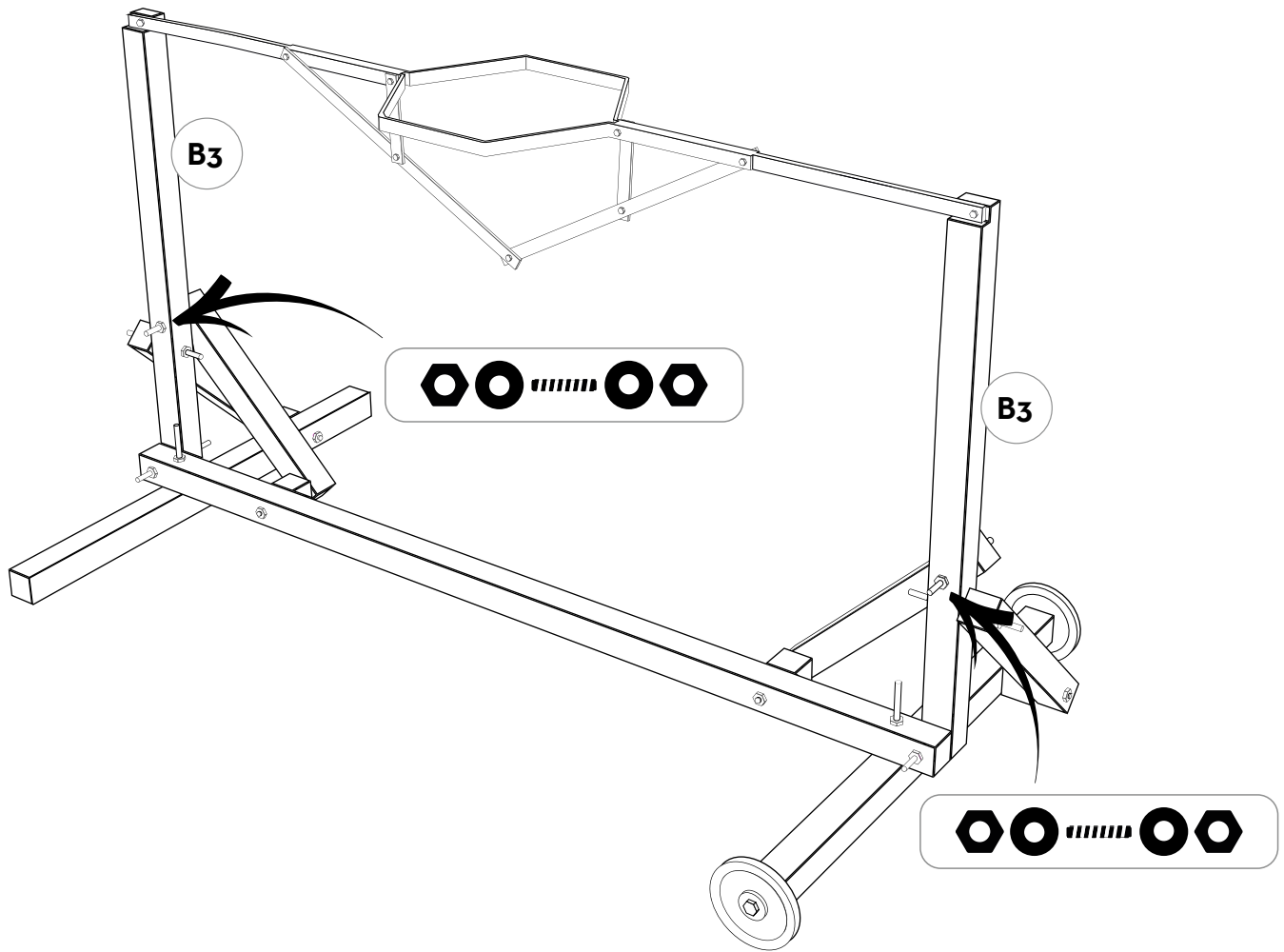


 2 threaded rods

 4 washers

 4 nuts

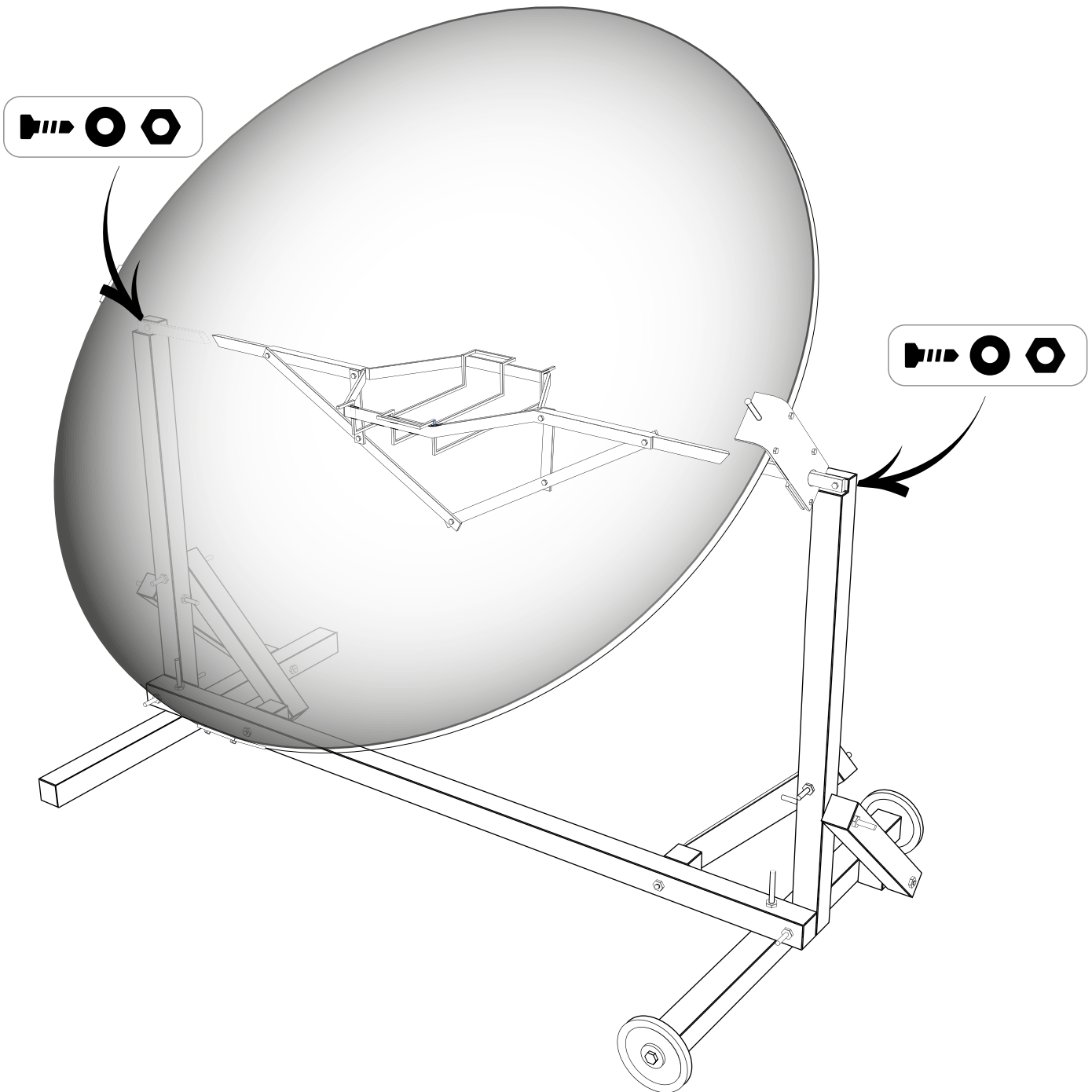
After checking the 90° angle, drills b3 through the hole in C




 2 threaded rods


 4 washers


 4 nuts



parabola



2 screws  
Ø6 x 60 mm



2 washers  
Ø6 mm



2 nuts  
Ø6 mm

Remove the bar and replace it with the parabola