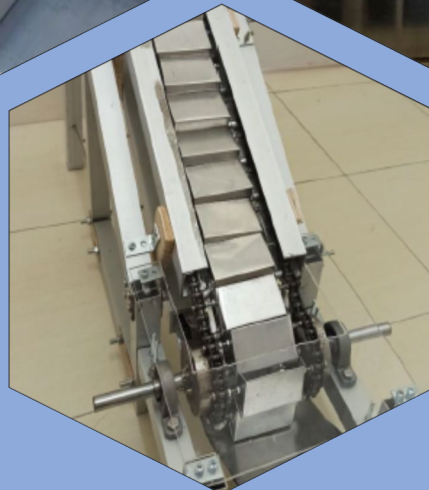
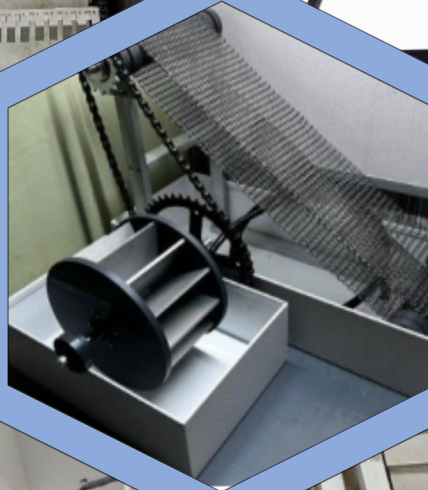


PROTOTYPE DESIGN COLLECTION

SERIES 1



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CHAPTER 34

Design, Analysis and Fabrication of Portable Grill Machine with Water Turbine

Muhammad Harith Bin Zainul Asri and Nur Kamarliah Kamardin

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PROJECT DESCRIPTION

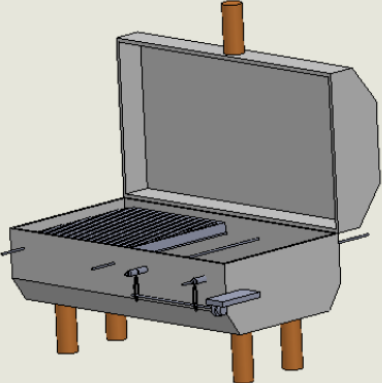
The portable electric grills for picnics nowadays are powered by TNB (Tenaga Nasional Berhad) electricity, which is derived from coal, a non-renewable energy source that powers the device. In particular, the objectives of the study are to design a portable grill supported by hydro energy and fabricate a portable grill that can provide comfort to users such as being lightweight, easy to maintain, and portable. A portable grill with a water turbine was developed by starting with the designing process, marking, cutting, painting, fastening, and evaluation process. As a result, this portable grill can complete the operation task below 5 minutes such as installation of components, lighting charcoal, and cleaning components. In addition, this product is beneficial for nature lovers who enjoy picnic by the river or waterfall, as there is no need to search for a power source to turn on the rotational stick of the portable grill while connecting with nature and maximises the waterpower as the main power source for the portable grill with a water turbine.


Keywords: *Charcoal, portable grill machine, water turbine, renewable energy*

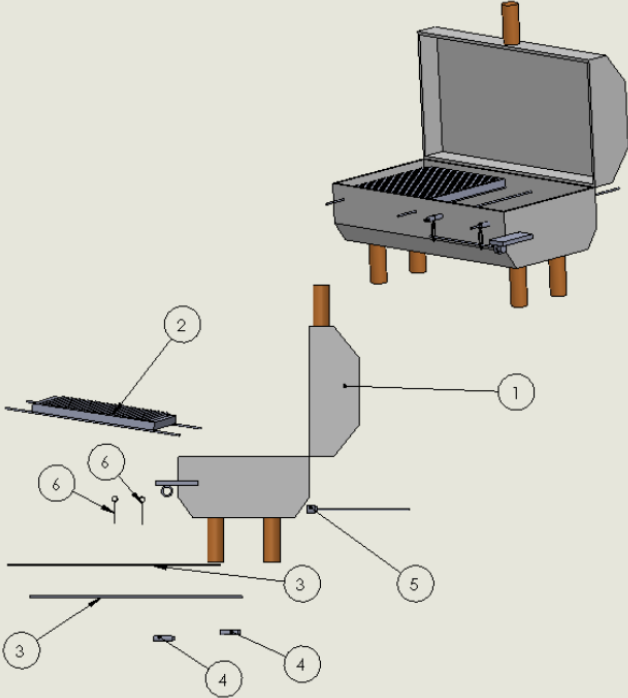
PROTOTYPE




DESIGN PARAMETER

6	5	4	3	2	1
D					D
C					B
B					A
A					A
6	5	4	3	2	1

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Course Name		MEC299- FINAL YEAR PROJECT 1 SESSION, MARCH 2021-AUGUST 2021			
Group		MEM1104D			
Approved MDM NUR KAMALIAH KAMARDIN	Checked	Drawn MUHAMMAD HARITH BIN ZAINUL ASRI 01/07/2021			
Drawing Title ASSEMBLY OF PORTABLE GRILL MACHINE WITH WATER TURBINE					
Part Name					
Part No.					
Rev.	Scale	Projection	Weight	Sheet	
0	1:4		1.9kg	1/1	

6	5	4	3	2	1
D					D
C					B
B					A
A					A
6	5	4	3	2	1

BILL OF MATERIALS (BOM)			
Part No.	Part Name	Description	Qty.
1	Body	293 mm x 160 mm	1
2	Grid Grill (Stainless Steel)	75 mm x 20 mm	1
3	Bamboo Stick	20 mm	2
4	Wooden Gear	25 mm	2
5	Motor	12 V	1
6	Rubberband	35 mm	2
FAKULTI KEJURUTERAAN MEKANIKAL (FKM) UNIVERSITI TEKNOLOGI MARA (UTM) JOHOR KAMPUS PASIR GUDANG			
Course Name		MEC299- FINAL YEAR PROJECT 1 SESSION, MARCH 2021-AUGUST 2021	
Group		MEM1104D	
Approved MDM NUR KAMALIAH KAMARDIN	Checked	Drawn MUHAMMAD HARITH BIN ZAINUL ASRI 01/07/2021	
Drawing Title EXPLODED ASSEMBLY OF PORTABLE GRILL MACHINE WITH WATER TURBINE			
Part Name			
Part No.			
Rev.	Scale	Projection	Weight Sheet
0	1:5		1.9kg 1/2