

15 August 2019

## Notes on Ben-Stove with tripod without weld

The documentation of the efficient fuelwood stoves Ben 2 and Ben 3 was published as Open Source in 2016 by Solar Cookers International in English: <http://solarcooking.org/ben>

...and Fundación Terra (in Spanish)

<https://www.terra.org/categorias/articulos/hornillos-de-lena-ben-2-y-ben-3-de-dieter-seifert> .

In August 2019, the author received a note from Sri Lanka, which suggests a modified construction of the tripod. The tripod elements made of steel strip are fastened to the furnace shell by screws, so that no welding is necessary. The essential parts of the Ben-Stove are maintained. We will name it "Ben SL". The parts of an example of Ben SL are described in the parts list (given below) and shown in the two drawings (Fig. 1 and 2, page 2).

Fig. 1 shows Ben-SL in section with a pot (left) and a pan. Fig. 2 is a top view. Shown are: the ash pan (1) with the built-in hairpin-shaped fire grate bars (2), the furnace shell (3), which is divided into two halves. The newly proposed tripod parts (4) are fastened to the furnace shell with two screws M6 x 15 (6) each.

The bottom edge of the furnace shell (3) is 30 mm from the ground, so that the fire on the grate (2) is supplied with primary and secondary air unhindered. The diameter of the furnace shell results from the pot diameter D and the double gap width 2s. The gap width s is advantageously 7 to 10 mm.

The most favorable distance of the pot from the furnace grid (2) depends on the fuel (especially on the flame length). Therefore, the furnace shell height H and the length L of the tripod have to be optimized experimentally.

The contribution from Sri Lanka is a good example of the opportunities for cooperation with the open source principle for finding appropriate solutions.

List of Parts for Ben SL (with recommendation for tripod legs from Sri Lanka)										15.08.19	Dr.-Ing. Dieter Seifert
Example with stove shield for pot diameter D = 28 cm and for appropriate pans											
Part Number	Quantity of Parts	Name	Date of drawing./ standard	Material	Thick-ness or diam.	Width	Length	Cross section	Weight per part	Total weight	
					mm	mm	mm	mm <sup>2</sup>	kg	kg	
1	1	Ash Pan	11.03.2015	sheet steel	1	250	400	250	0,870	0,870	
2	4	Grate (hairpin shaped)	11.03.2015	round bar steel	6		331	28,3	0,073	0,292	
3	2	Half Stove Shield (300 mm diam.)	15.08.2019	sheet steel	1	200	491	200	0,855	1,710	
4	3	Tripod Leg (L = 132 mm)	15.08.2019	strip steel	4	20	287	80	0,200	0,600	
5		Extras (e.g. extra shield; tripod legs)									
6	9	Screw M6x15	DIN 933	galvanized steel					0,003	0,027	
7	9	Nut M6 *)	DIN 934 *)	galvanized steel					0,002	0,018	
8	2	Spanner for 10 mm wrench size		galvanized steel					0,010	0,020	
9	1	Nipper (for handling stove shield)		galvanized steel					0,200	0,200	
		*) preferred serrated locknut								total kit:	
									kg	3,74	

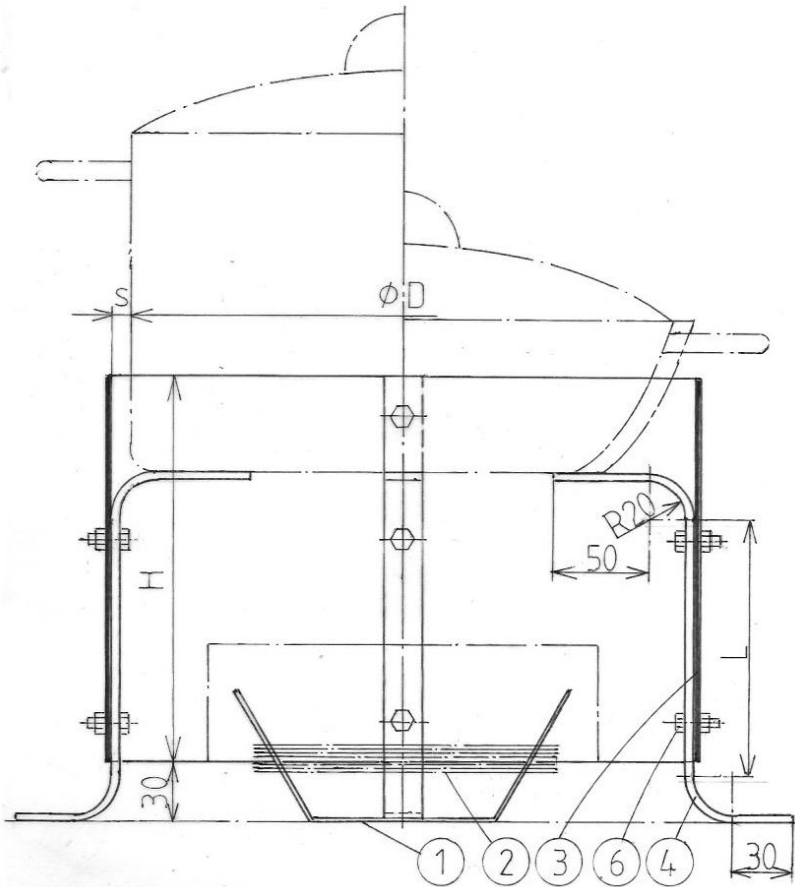


Fig. 1: Front View Ben SL  
with pot (left) or pan  
Gap  $s$  should be 7 ... 10 mm  
Numbers from List of Parts  
[mm]

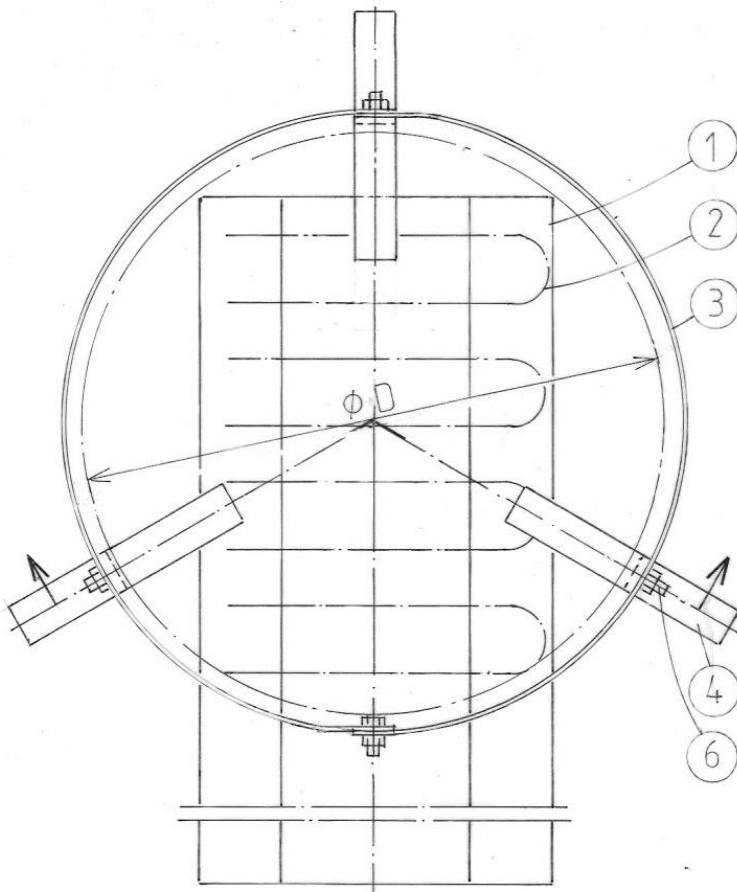


Fig. 2: Top view Ben SL