

THE BAZBALL BURNER

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Start with one Coke can, one Guinness can, one Baked Bean tin and one ball-bearing.

End with this - a burner that will make eight cups of tea, stew or soup and leave plenty of hot water for washing up! All on one filling of Methylated Spirit. And all from a burner that is just 4.5cms high, weighs less than a small mobile phone, and is made from discarded household objects. There are plenty of other designs for Coke can burners, but none so efficient or so simple to make as this one. **Here's how you do it:**



Mark the Coke can 45mm up from the base. Mark the

Guinness can 23mm up from the base, and mark the top about 5mm down from the start of the bevel edge, as shown (the depth of this last mark is not critical).



Turn the Coke can upside down and clean the paint off as shown. A wire brush will do this in a few minutes. Do the same with both ends of the Guinness can.



Place the ball-bearing, which should be around 1.5 - 2.0cm diameter, in the centre of the upturned Coke can, and strike it with a hammer to make an indent.

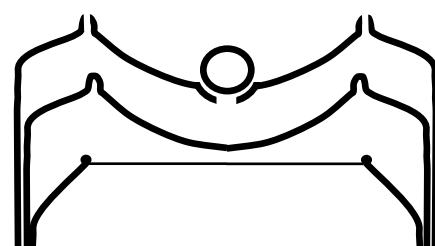
You can now open both cans and dispose of the liquids in whatever way you choose!

Cut each can to the marks. The easiest way to do this is to use a Stanley knife in the centre of each can to start the cut, then use scissors to finish neatly to the lines.

With a can opener, remove the top of the Guinness can as shown.

You will end up with these three pieces.

They fit together just like this diagram.



And you are nearly there! Care is now needed for the next step, which will give you a successful assembly.

In the centre of the Coke can, where you made an indent, drill a small hole. This is for filling with fuel, and can be up to 5mm diameter.

Round the uppermost ridge of the can, mark off and make eight holes and use a thumbtack as shown to pierce each hole.



Check that they are all clean with no burrs by holding up to the light.



Now for the final assembly.

The assembly sequence is as shown here. *Left* - Coke base. *Centre* - Guinness base. *Right* - Guinness top.



Place the Guinness base on a flat surface and position the Coke base over it. Gently but firmly ease the Coke base over the Guinness base and push downwards until fully home. I wipe a smear of gasket compound around the Guinness base first, (Hermetite) but this is optional.

Then position the assembly over the Guinness top, and again, push firmly home. There is no need to crimp, shape or otherwise alter the contours of any of these components. They will fit together like the proverbial glove. The Coke can is fractionally larger than the Guinness can, and this difference allows for smooth assembly.

You are nearly finished, but first - cut the Baked Bean tin so that the base is 40-50mm high. Tin snips are the easiest way of doing this (or you can buy a tin of red salmon - it is just under 50mm high!).

NEVER LIGHT OR RUN THE BURNER WITHOUT SITTING IT IN THE TIN. The tin is an integral part of the design. Along with the ball-bearing, the tin helps to maintain an even burning temperature. It is also a fail-safe container if fuel is spilled when filling the burner.



To make the stand, cut a wire coat hanger into three strips and bend them so that each leg is 60mm high. I fit mine together with plastic tube - it doesn't get hot enough to burn. The stand folds flat.

And here's the end result:

Fill with meths, place the ball-bearing in the indent and add fuel around it. Light. That's it!

The flame is hard to see, because it burns hot and true blue. On test, this burner brought to a rolling boil four separate pans of water, and lasted for one hour and seven minutes. To get the best out of your burner, make sure you read the following notes:



There are several reasons for the high efficiency of this burner.

The ball-bearing acts as a heat sink, helping to maintain an even temperature throughout the burn. It is also an effective self-centring seal, helping to keep pressure in the fuel chamber. Other similar burners using a coin as a seal usually leak. This can be seen when a yellow flame remains in the centre of the burner after the initial warm-up period. Once the BazBall Burner has used the starting fuel, there will be no yellow flame in the centre.

The BazBall burner is also leak-proof, because the joint is below the fuel reservoir and not above it as in other burners, so the joint is not subject to extremes of heat which can cause distortion and leakage. The ball self-centres if disturbed during the burn, to maintain an effective seal.

The reason for using both a Guinness and a Coke can is that the diameter of the Coke can is fractionally larger than the Guinness can, and this difference is enough to allow for easy assembly. Other suitable cans can be used instead.

By adjusting the height of the cut line on the Guinness base before assembly, you can alter the length of the burning time, as more or less fuel is contained in the reservoir.

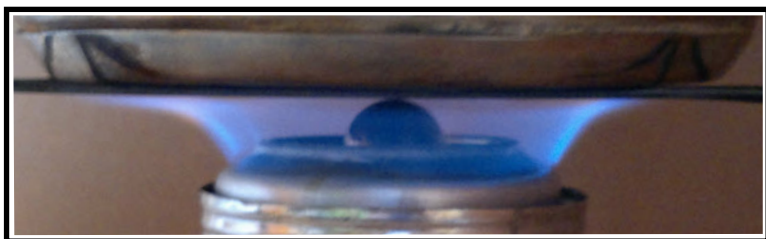
Never use the burner without first sitting it in the bean tin! When lit, it is very efficient, and the fuel expands quickly. If you overfill it, the fuel will run down the sides of the burner soon after it is lit.

Without the bean tin you will have a runaway burner. The bean tin contains any overflow, and burns it very slowly to assist fuel evaporation within the burner. It is an integral part of the burner design.

Pot Stand: Any pot stand needs to allow between 1.5cm and 2.5cm clearance above the burner for maximum efficiency. I made the pot stand shown from a wire coat hanger. It folds easily, is firm and stable in use, and will take several sizes of pot. The blue flame will be evident once a pan has been seated on the burner, and will show yellow tips whenever the pan is removed.

There is no need for a separate burner stand, as the design keeps the burner off the ground, which is essential for efficient combustion in cold conditions.

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**THE BALL HOLDS THE SECRET
TO THE BLUE FLAME EFFICIENCY**



This burner produced the following results on test, with one filling of methylated spirits:

Each time, the pan was filled with enough water to make two mugs of tea. If soup, stew etc were to be heated instead, times would be shorter as these would not be brought to a rolling boil.

Elapsed time	Result
20 mins	Rolling boil.
30 mins	Rolling boil.
39 mins	Rolling boil.
51 mins	Rolling boil.
67 mins	End of burn. Hot water, enough for washing up.

Total burn time	67 minutes
Blue flame time	48 minutes

A heavy copper-bottomed pan was used, and this helps to account for the slow initial boil.