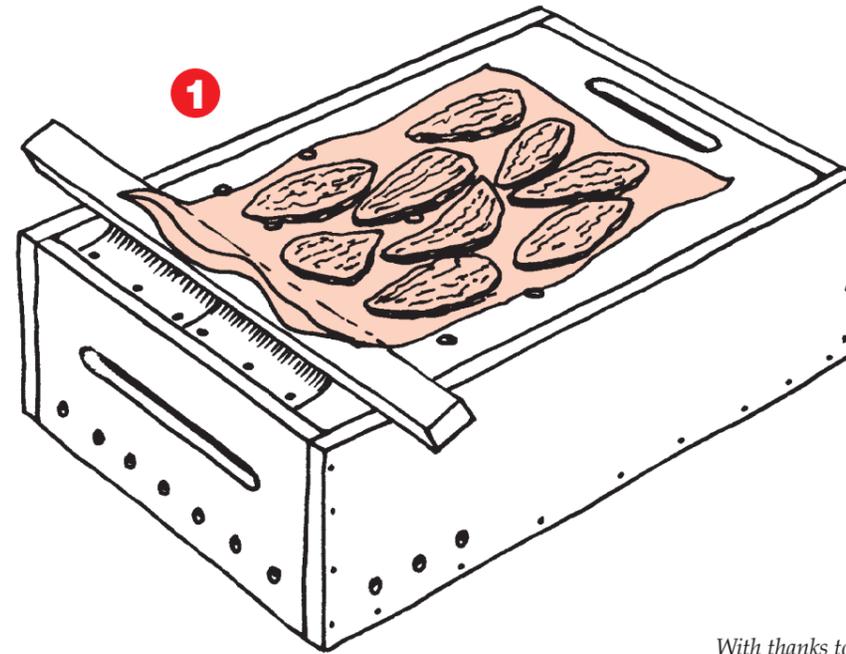


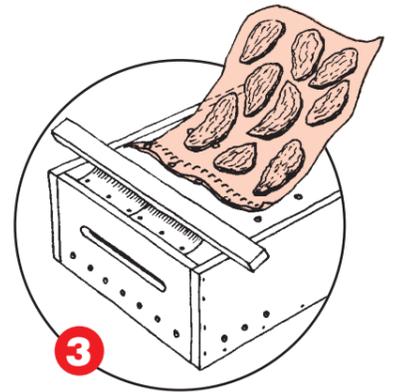
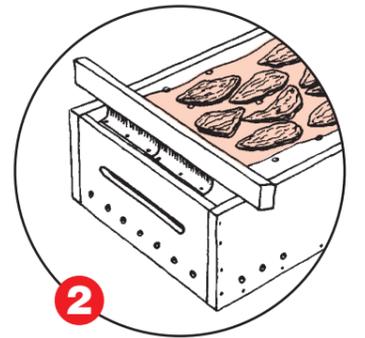
Plastic bag sealer

Usually, the best packaging materials are those which are natural and can be recycled. But when these cannot be used, plastic bags may be the best choice. This simple tool is ideal for small businesses. It can be used to package food, clothing or craft work. Sealed plastic bags will protect the contents from dirt, damp or loss and make products look more professional for marketing.



Using the bag sealer

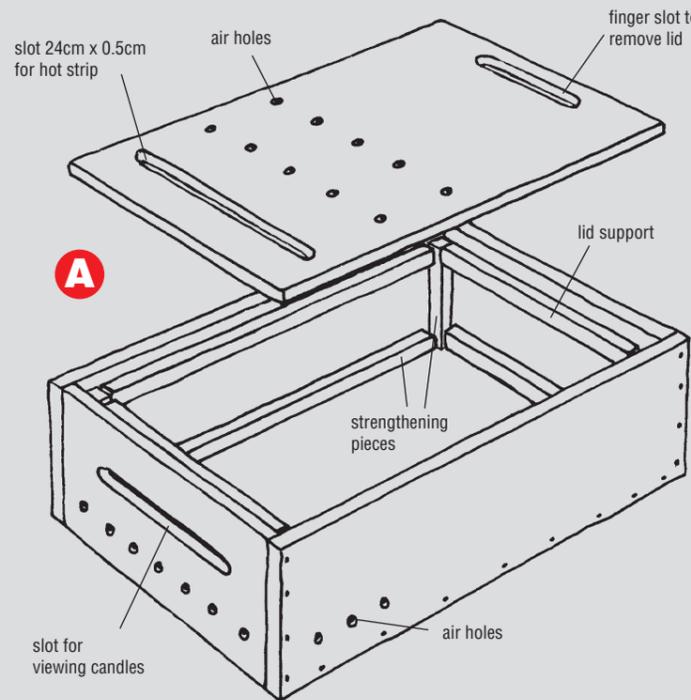
- Light the candles, close the lid and wait for 10 minutes to allow the strip to become hot.
- Place the plastic bag on the box so the open end of the bag rests on top of the clamp plate (1).
- Lift the clamp plate with both hands so that the open end of the bag falls onto the hot strip (2). Lower the clamp plate so that it presses the bag against the strip for 1 or 2 seconds. Raise the clamp again and remove the bag, which is now sealed (3). With practice, many bags can be sealed each minute.
- After use, blow out the candles.



Construction

Making the box

- Find or build a strong, firm wooden box with a lid (A). A good size is 40cm long, 30cm wide and 8cm deep, which should fit most plastic bags.
- The box can be made from a board cut to the following sizes: 2 pieces 40 x 30cm, 2 pieces 8 x 42cm and 2 pieces 8 x 30cm. Glue and nail the box together and strengthen the joints with strips of wood.
- Use a fret saw to cut a narrow slot half way up the front of the box for viewing the candles. Drill air holes as shown, to allow air to reach the candles.
- Make the lid the same size as the base. Drill holes to allow air to reach the candles. Use a fret saw to cut the other slots, as shown.
- If available, glue aluminium foil to the inside of the box and lid. Pierce the foil where it covers the air holes and slots.

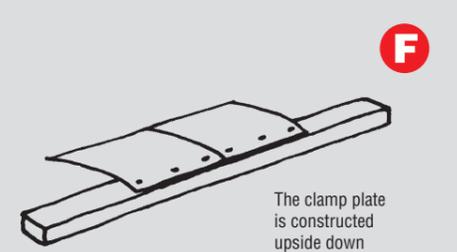
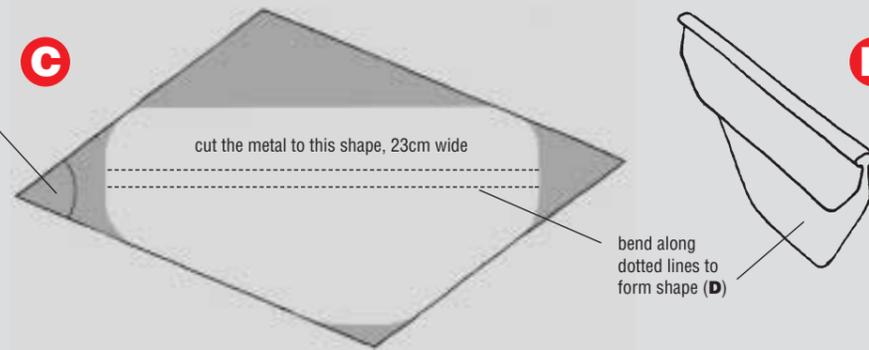
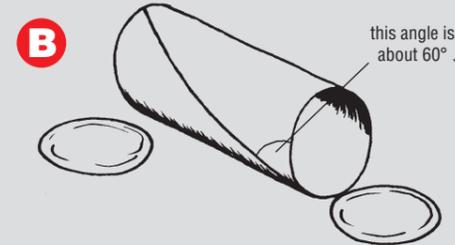


With thanks to Mike Clifford and Gavin Peterson from the School of Mechanical, Materials, Manufacturing Engineering and Management at the University of Nottingham, NG7 2RD, UK. They welcome further challenges for engineering projects.

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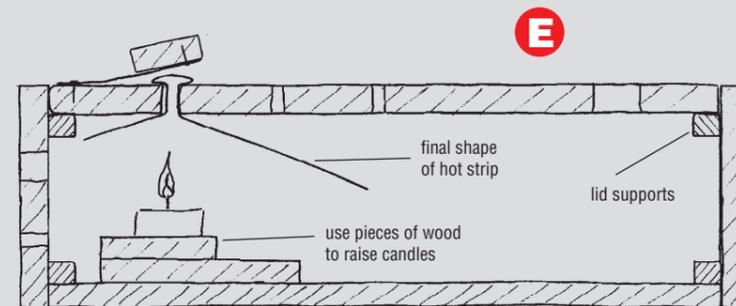
Warning!

- Be careful using sharp tools and metal cans.
- Make sure there is always a bucket of water or sand available in case anything should catch fire.
- Never leave the sealer unattended while the candles are lit.
- Be careful when removing the bag, as the strip will be hot enough to burn the operator.



The hot strip

- Make the 'hot strip' from an aluminium drinks can. Remove both ends and cut the cylinder at an angle of about 60° (B) to obtain a diamond shape of flat metal. Cut this to the lighter, rounded shape shown (C). The paint is a possible fire risk, so remove it with sandpaper and water.
- Mark a 1cm band down the centre of the sheet and bend into a shape with a cross section, as shown (D). Fit into the lid of the box and fold to finished shape, as shown (E).
- Place five small 'night-lights' or candle stubs in the box, directly under the strip in the lid of the box.



The clamping plate

- Remove the ends of another drinks can. Cut the cylinder twice down its length to produce two equal rectangles (F). Again, remove the paint. Nail them to a strip of wood 3cm by 35cm.
- Turn the wood over and place it directly over the strip in the lid of the box (E). Nail the metal to the lid of the box, close to the edge, and trim away the metal, making sure there are no sharp edges.