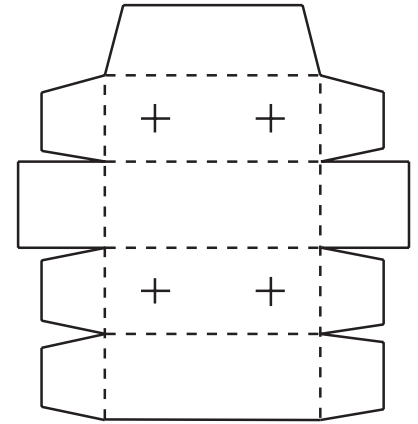


CAM MECHANISM HOUSING

Crank Handle

See page 35 for instructions



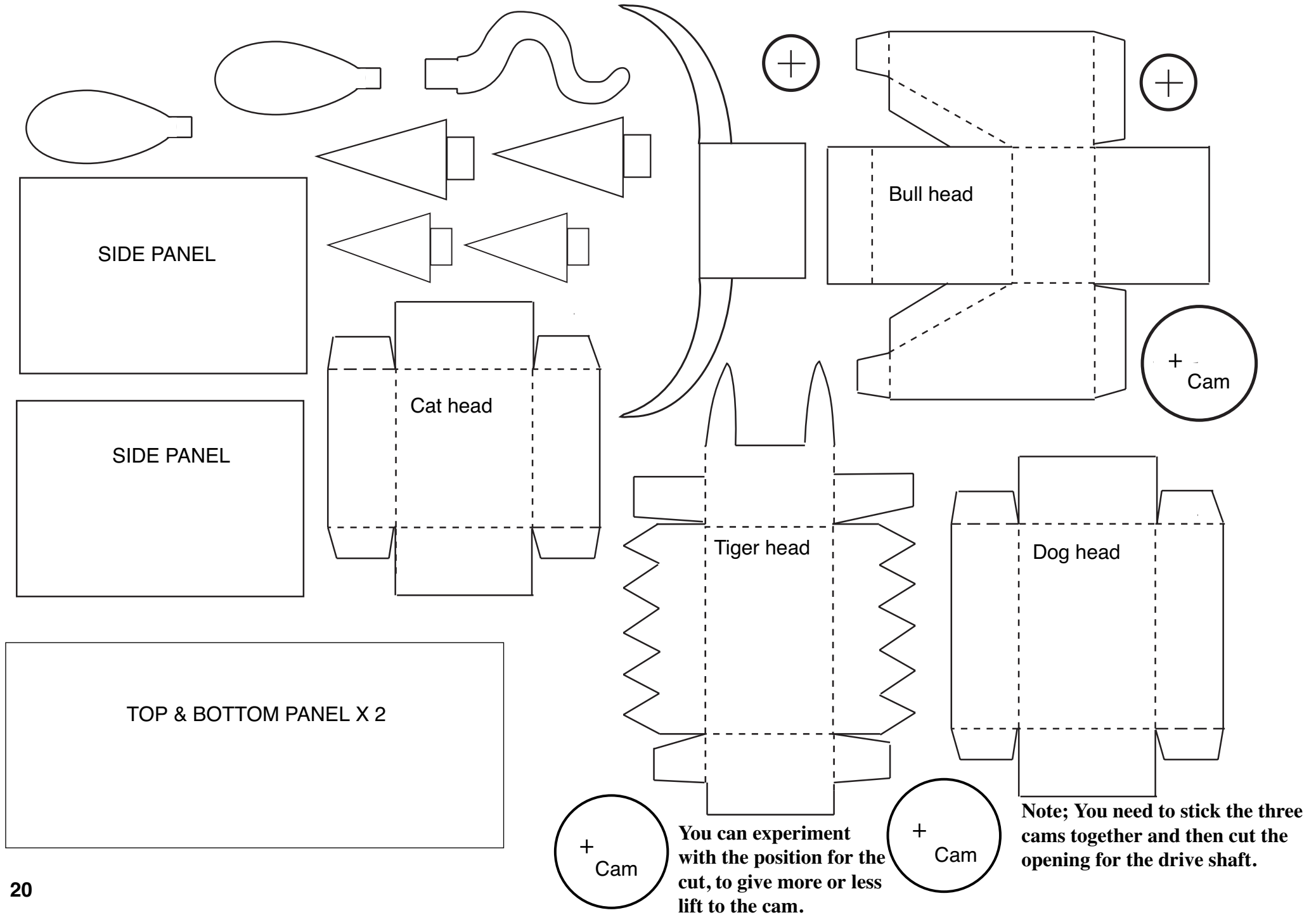
Drive shaft 130mm



Push-rod 94mm



Handle 40mm



SIDE PANEL

SIDE PANEL

Cat head

Bull head

Tiger head

Dog head

TOP & BOTTOM PANEL X 2

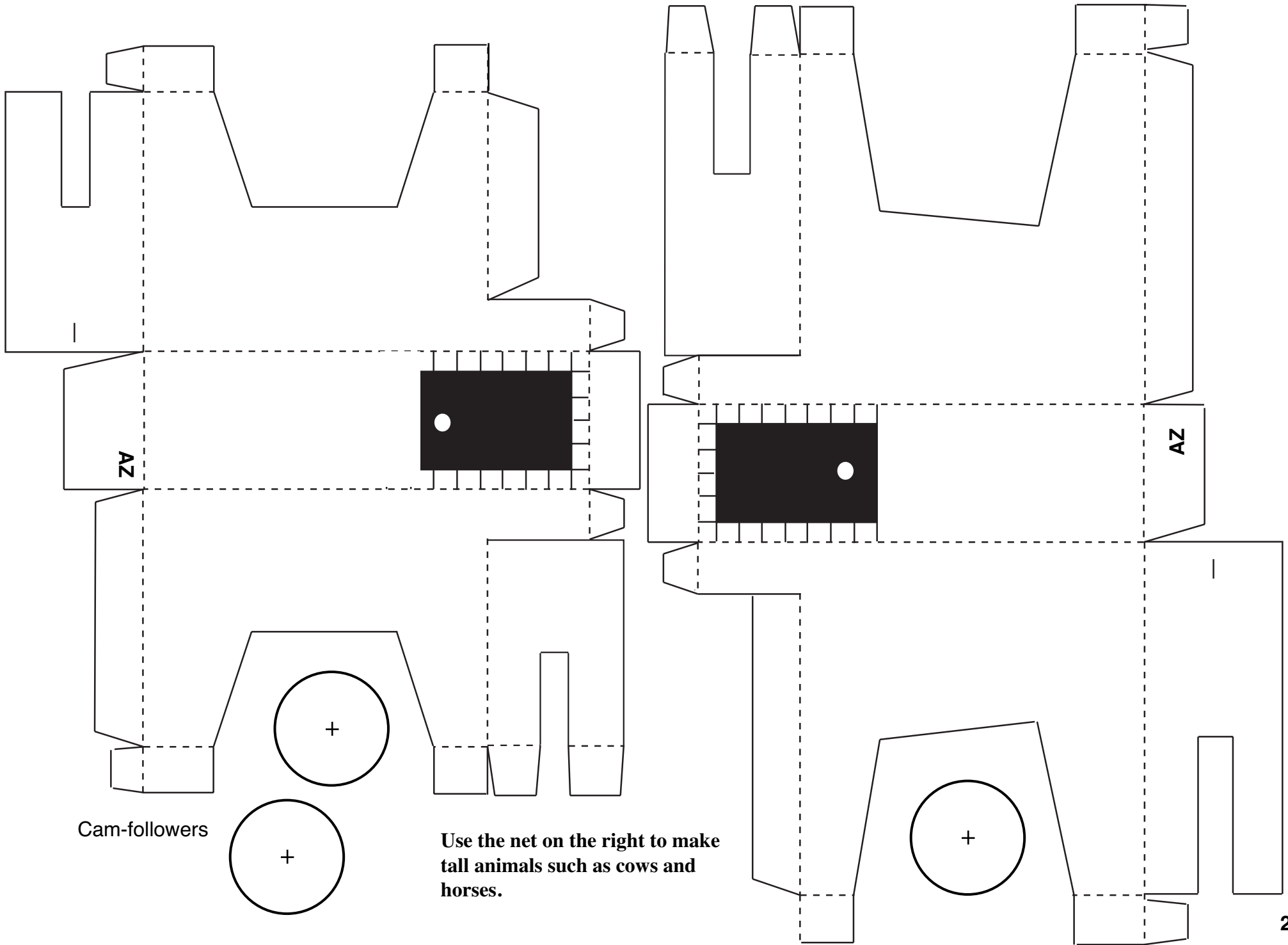
+
Cam

+
Cam

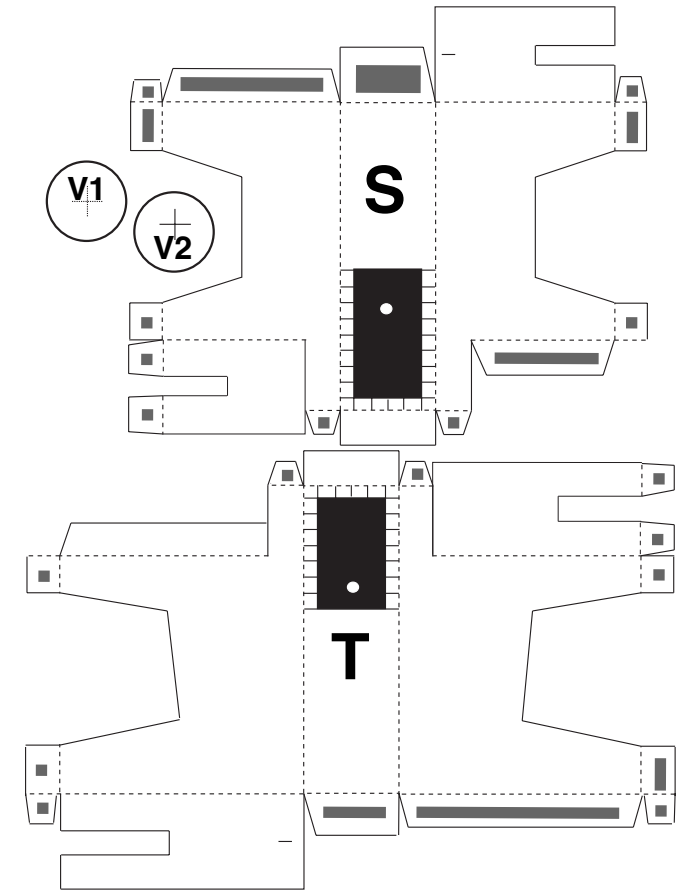
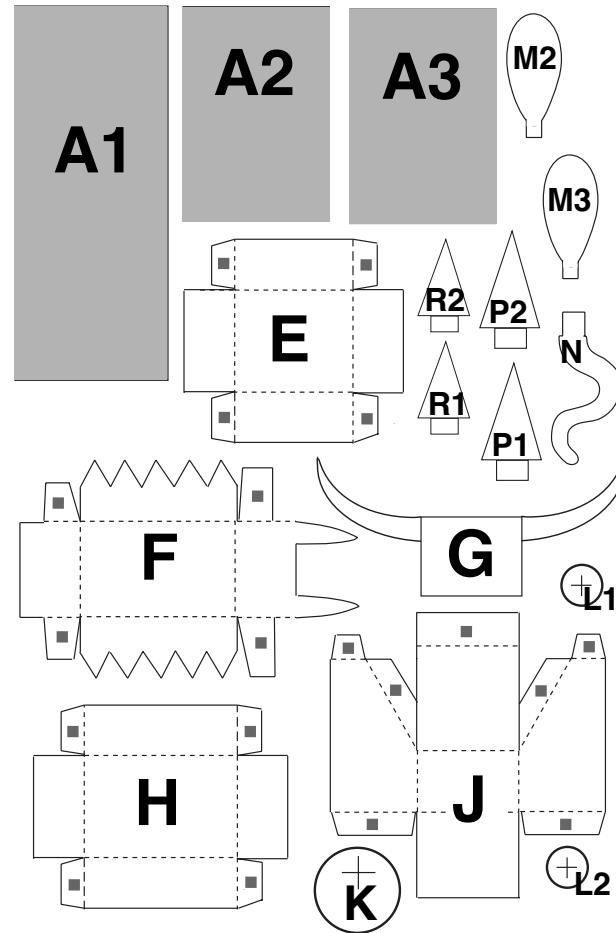
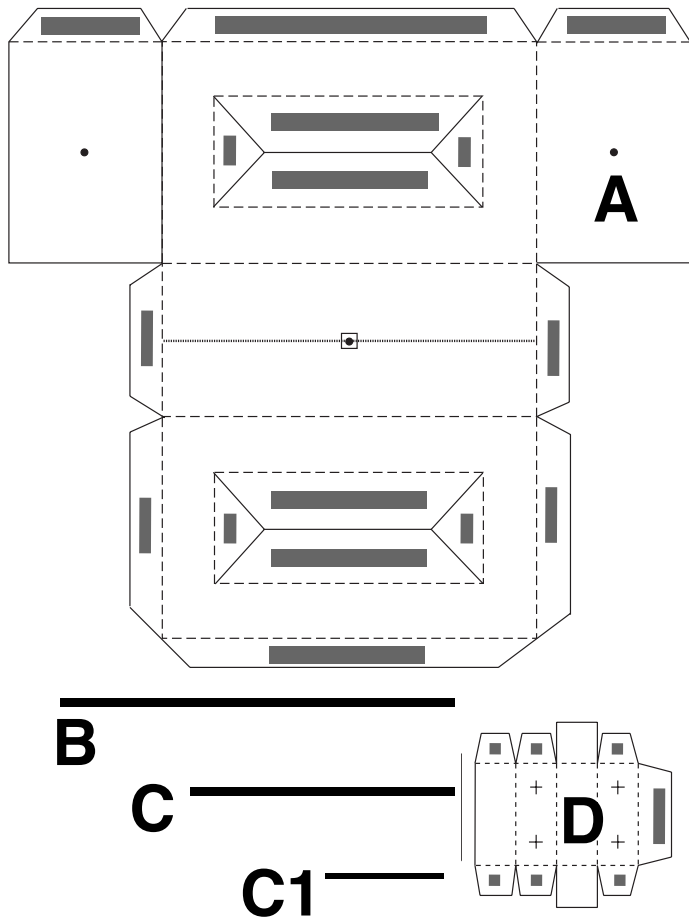
+
Cam

You can experiment with the position for the cut, to give more or less lift to the cam.

Note; You need to stick the three cams together and then cut the opening for the drive shaft.



CAMS Instructions for making the nets



Instructions

- Fold along the dotted line.
- Cut along the solid line.
- GLUE**
——— Glue the tabs marked in grey.
- A** The letter in bold is the part being referred to.

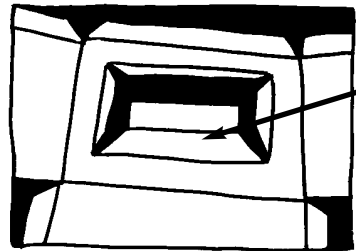
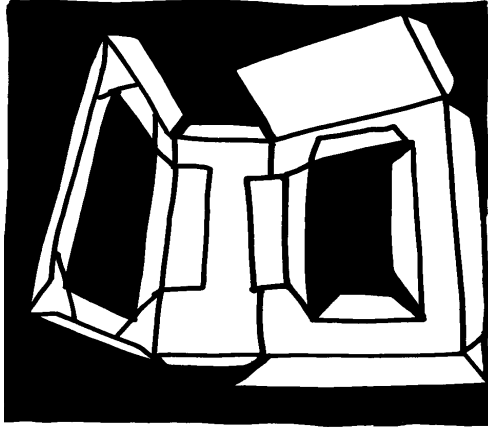
The folds are made by bending the card backwards, along the dotted lines and creating a “valley” fold.

You need to work with a good glue. PVA will do the job but takes a little while to dry. You can use a wood glue which is safe for children (details on the website www.automata.co.uk). UHU make an excellent solvent-free adhesive which is washable and non-toxic.

CAMS

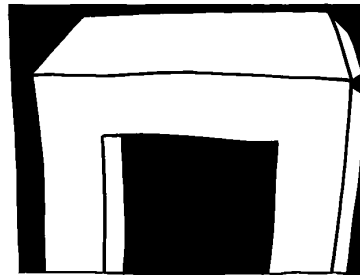
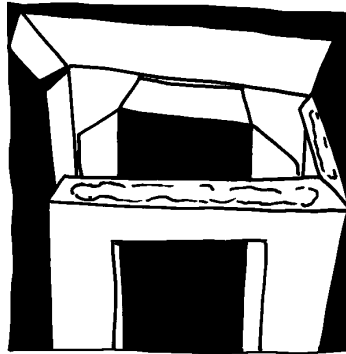
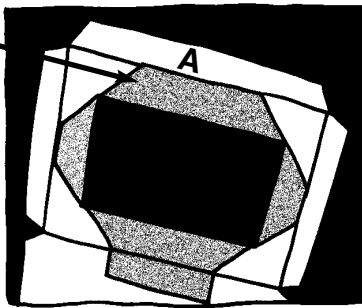
INSTRUCTIONS:

Start with the box and cut out the main shape using scissors or a craft knife, then fold back all the tabs.

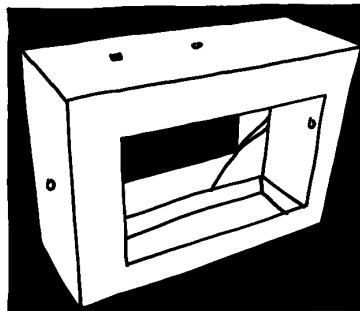
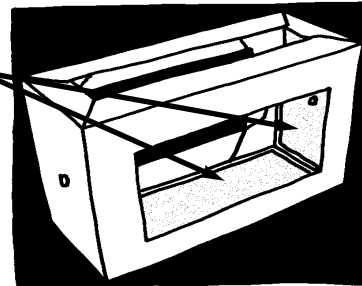


Pay special attention to the middle cut outs. Only cut along the solid black lines.

Note the inner tabs, shown here in grey. They have been folded and glued to the side of the box. The longest tab (A) attaches to what becomes the bottom of the box. This is glued down later.

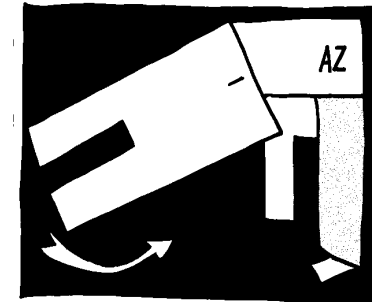
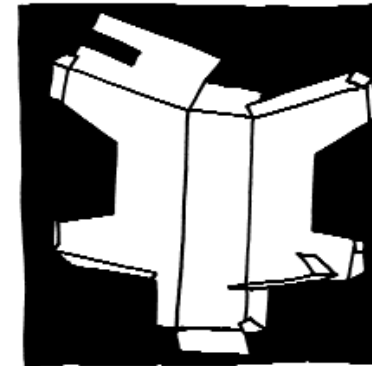


You then need to glue parts **A1**, **A2** and **A3** (marked in grey) to the inside of the box. This will give it extra strength.

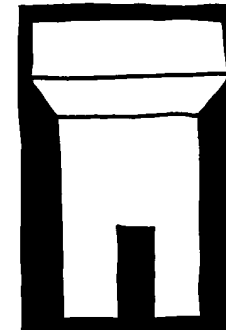


When all the inner tabs are glued down you then need to attach the side panels. They are glued to the two tabs on the side and top of the box. Note the lower tabs are not used at this time. This keeps the bottom of the box open which makes fitting the cams much easier. A final panel is glued on at the end.

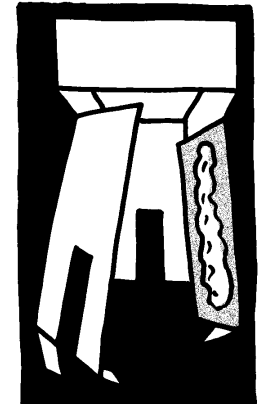
The final box should look like this. Note you may have to cut out the holes for the cams using a craft knife.



Now do the same for the front of the animal's body. Take care when attaching the feet. They should also be nice and square.



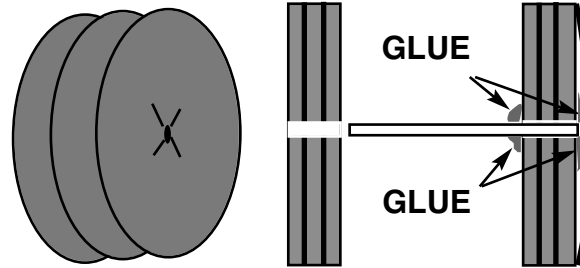
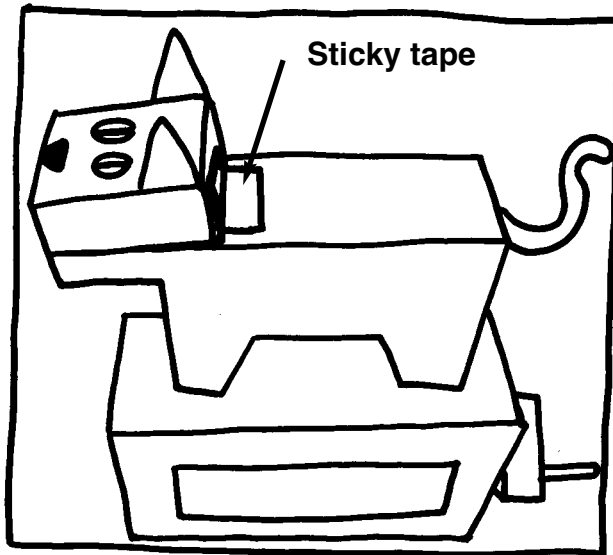
As with the box you need to cut out the animal's body and bend back all the tabs ready for gluing. The rear of the animal should have tab **AZ** attached first. Note this has a 90° straight edge. Glue this carefully to ensure that the body is square. Finally, glue the hind legs.



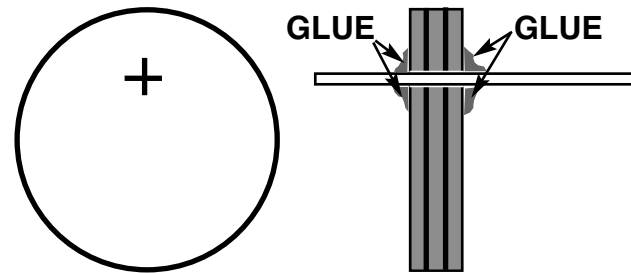
The front legs should line up with the body. This will give the animal's body a straight and strong structure.

CAMS

Finally make up the animal's head, (cat, dog cow etc) and place it on top of the animal's body using a strip of sticky tape. Then glue the animal on top of the box, lining up the feet with the position markers. The two holes should also line up, this is where the push-rod (stick) is going to go. It needs to be free enough to move up and down and not catch. The holes should not be too big as this may cause the mechanism to jam. The guide marks are clearly shown on the template so only cut to these lines. You may have to enlarge them if the holes don't line up initially.

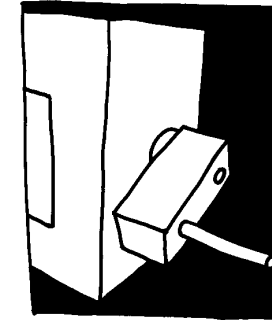


You will need to stick the cam followers together. You can use 2 or 3 layers of card. When dry, cut a small cross in the centre and push the 94mm stick through. A small amount should protrude from the end, cover this with glue to make it stronger. A final disk covering the glue and protruding stick, makes a nice smooth cam-follower.

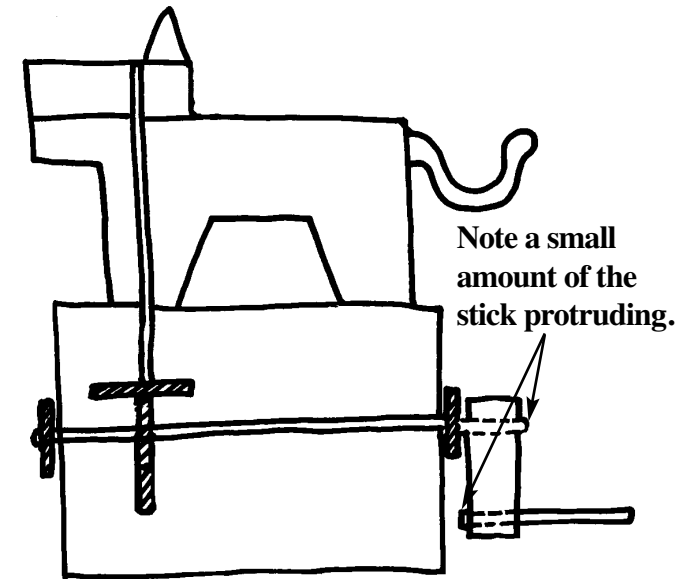


The cam is made in a similar way to the follower except it is offset and is glued on the 130 mm stick and should sit underneath and in the middle of the cam-follower. Once in position you can glue the end stop and spacer parts number. **V1 & V2**.

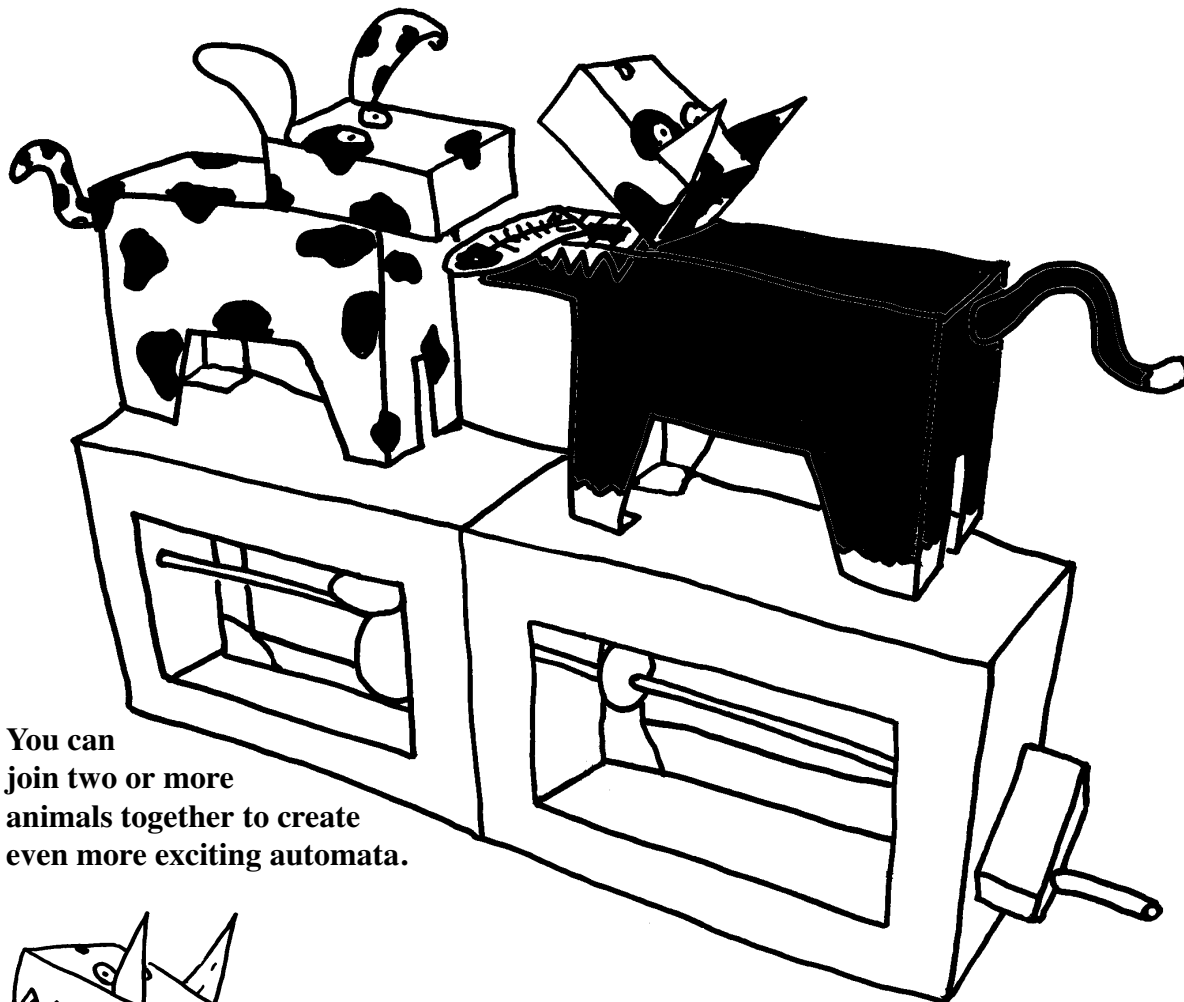
The crank handle is simple to make and folds together like the big box. You will need



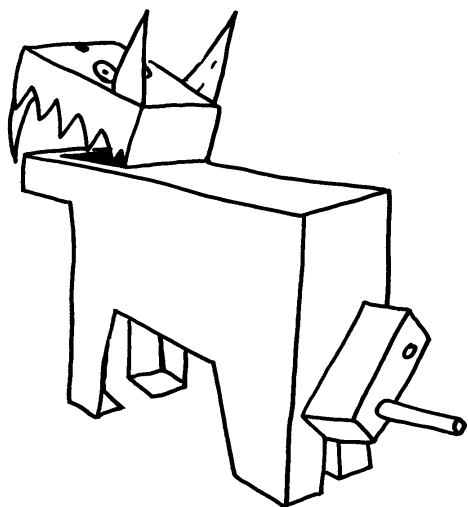
to make sure that the sticks used for both the handle and drive shaft go through both ends. Allow about 2mm to protrude and put a blob of glue on to hold them firmly in place.



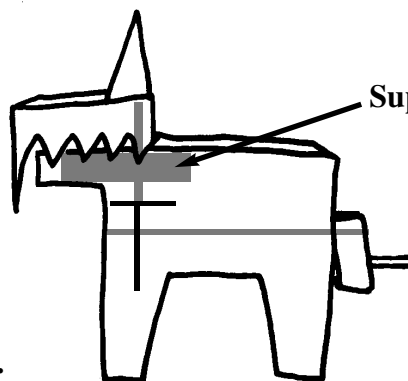
The illustration above shows the cams in place and the push-rod running up through to the top of the head. Turning the crank handle will make the mouth open and close. Unlike real life the top of the head moves and not the lower jaw.



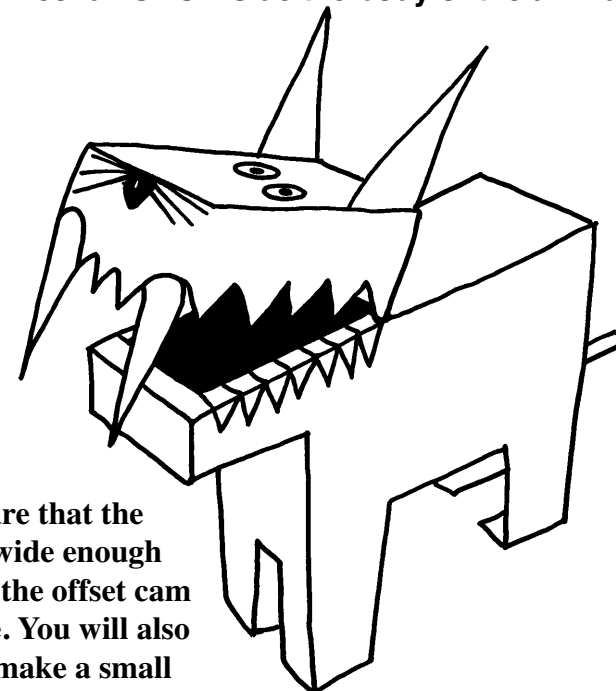
You can join two or more animals together to create even more exciting automata.



Putting the mechanism in the body simplifies the automaton, but is a little more fiddly to make.



You can dispense with the box and house the mechanisms inside the body of the animal.



Make sure that the body is wide enough to allow the offset cam to rotate. You will also need to make a small support box. This stops the cam from jamming. The head net on page 20 was used for this model.

