

# MOVING PICTURES!

We all like to watch a film but did you know that moving pictures, or 'movies' was the last great Victorian invention? The very first film showings in Britain took place in February 1896 and were of everyday events rather than telling a story. Before film though, there were other ways of making pictures 'move', including the Zoetrope.

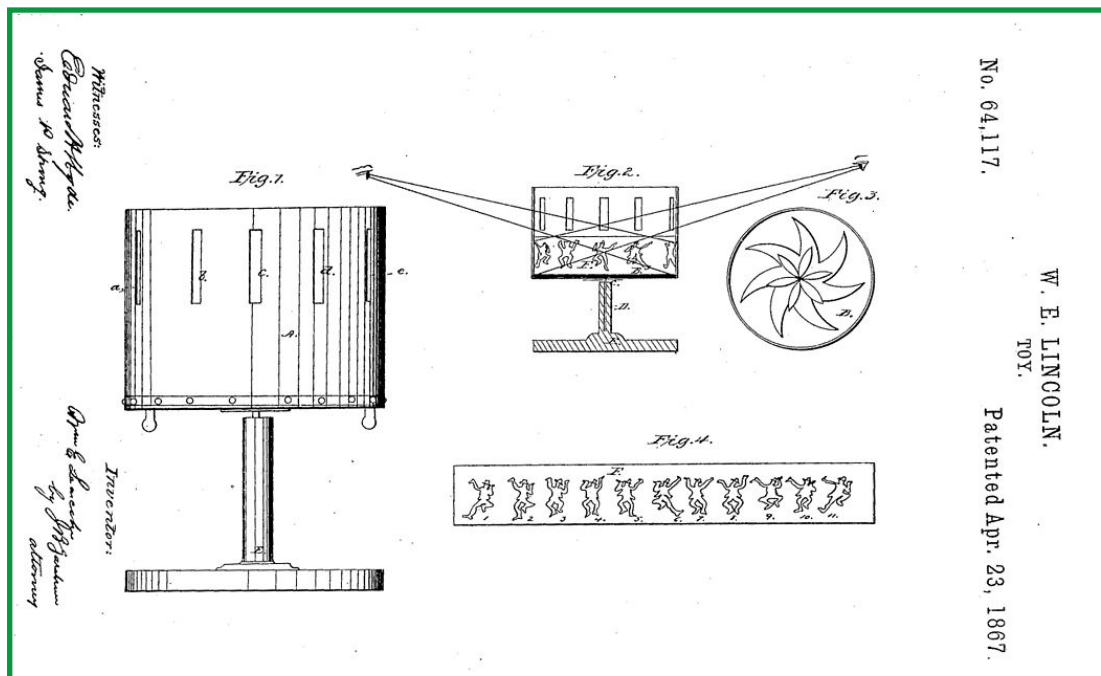


## The History

A zoetrope is one of several pre-film animation devices that makes you think the pictures are moving because each one in a sequence is slightly different to the next.

William Ensign Lincoln invented the zoetrope as we know it, in 1865 when he was 18 years old. He named it after the Greek words 'zoe' meaning life, and 'tropos' meaning turning - 'wheel of life'.

A zoetrope is a cylinder with cuts vertically in the sides. On the inside of the cylinder is a band with a series of pictures, each slightly different from the last. As the cylinder spins you look through the cuts - this stops the pictures from blurring together.



## The Science

A zoetrope works because of something called 'persistence of vision' - your brain can only process 10 or so images per second and you can only remember one image for up to a fifteenth of a second - that's not long! So, if you see another image in that period of time it makes it look like they are moving. This is how a cinema projector works.

## The Making

To make your own Zoetrope you will need:

- Paper plates
- Black card
- White paper
- Scissors
- Marker pens
- Glue and sticky tape
- Double sided sticky tape if you have it
- A marble
- Black paint
- A blob of modelling clay

Paint your paper plate black and leave to dry.

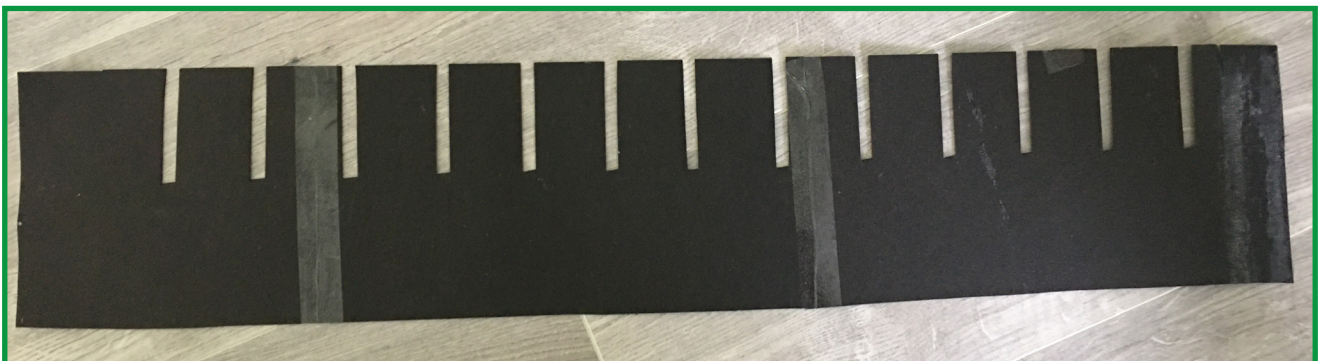
Find the middle of the plate and put the blob of modelling clay on the bottom on the plate at that point, then stick the whole thing onto the table.

Using a pencil, carefully make a hole in the centre of the plate – the clay will stop you damaging the table. Take the clay off the plate.



Use scissors to make an X shape from the hole and put the marble into this. Use sticky tape to hold it in place (the marble should show more at the bottom of the plate than at the top). Put the plate on a flat surface and give it a spin.

Cut a long strip of black card (or tape two shorter pieces together to make a long one) - it needs to be long enough to go all the way around the edge of your plate and have an overlap.

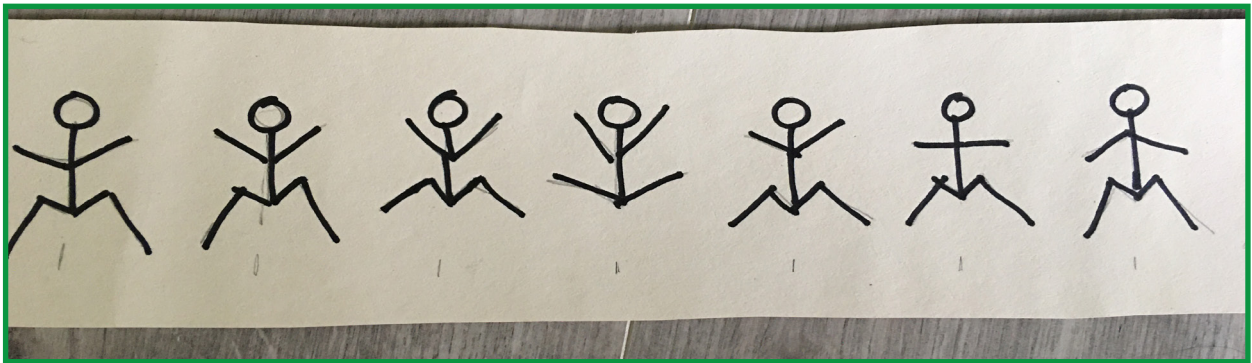


Mark the card with a pencil and ruler to show where your viewing slots will be cut. They need to be evenly spaced and about 0.5cm wide and 8cm long. Cut out the slots.

Wrap the card around the outside of the plate and tape them together. Double sided sticky tape would be helpful here but not essential. Glue the overlap together and secure with tape.

Take a white piece of paper and cut a strip that is long enough to fit inside your zoetrope – it should have a slight overlap.

Decide what your images are going to be – we have done a dancing stick man, which is nice and easy to start with. Draw each image the same distance apart as the viewing slots. The images need to be in the same position as the one before it with a slight change in the movement it is making (see photo). This is how a cartoon animation works.



Put the strip inside the zoetrope and set it on a table so you can see through the slots and give it good spin – your 'moving picture' is finished!

