
Make your own Pinhole Camera

Materials required:

blackout fabric/ plastic the size of all windows, gaffe tape and a pair of scissors.

Before starting, consider what rooms you have available and what views would make an interesting projected image.

Things to consider:

Light: an open view with plenty of light works best

Movement: an aspect of movement such as a road, river or footpath can add interest

The interior of the room: white walls will show the view most clearly but furniture and wallpaper can add an interesting juxtaposition

Remember your view will be projected upside down and back to front in your room.



Select your room and the view you want to capture. Blackout the room, you can use heavy-duty black plastic or fabric blackout material.

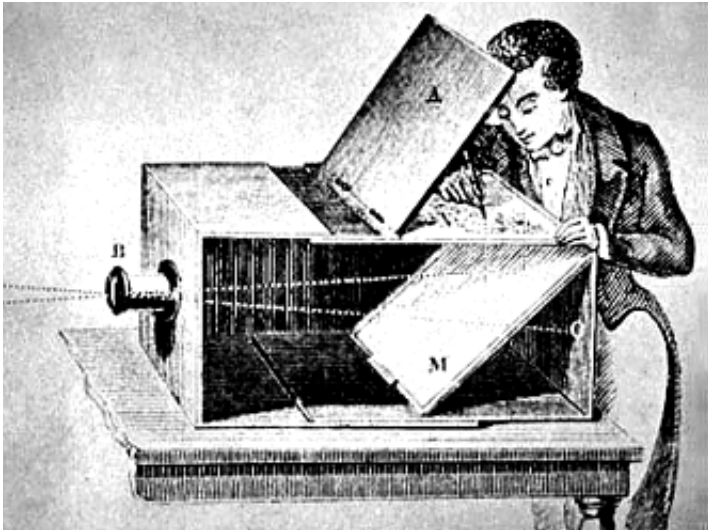
Cut a small hole approximately 10 - 15mm in diameter, central to the view you wish to have projected into your room. Allow your eyes to adjust for at least 10 minutes to view your obscura, if the image is too faint, make your hole a little larger. Note: the smaller the hole, the fainter and sharper your image will be while, a larger hole will produce a brighter but less focused image.

When bringing people into your obscura it works best if you have a small cardboard flap (lens cap) over your light hole and sit your audience in the total dark for 5-10 minutes first – you can use this time to tell them the history of the obscura or exchange ghost stories. When you lift the flap and let the light enter – it will be spectacular

Materials required:

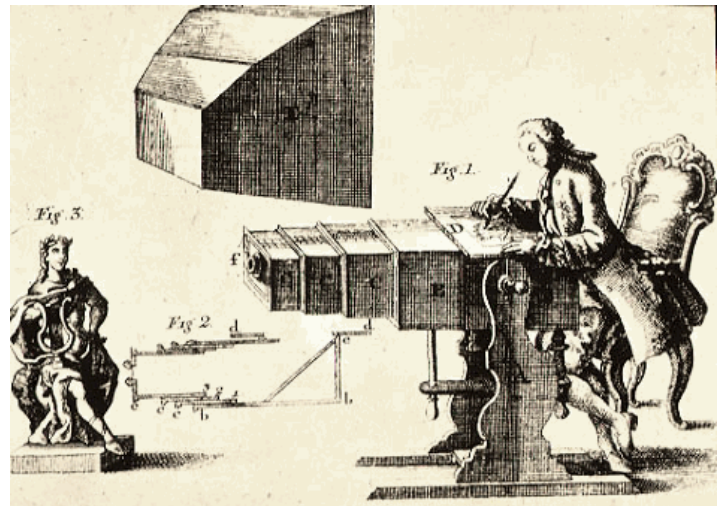
an old shoebox or similar; scissors; tape; tracing paper; darning needle/ small nail.

A portable obscura can be made very simply out of an old shoebox or other similar shaped box. Note: the depth of your box in relation to it's width will effect the size of the image, a longer box will give a more telephoto/ larger image and a shorter box will give a more wide-angle/ smaller image.



look through it, you won't see anything.

If you want to use your obscura as an aid to drawing, make sure your tracing paper screen is of a good size, a piece of frosted Perspex is ideal as it also gives you a surface to lean on. You will need a small table or other steady surface to sit your obscura on and a slightly larger piece of blackout material.



Select a box that is constructed of lightproof material. Replace one side of the box with a sheet of tracing paper. At the end directly opposite the side you have placed the tracing paper on, create a small, pin sized hole. If you can not do this through the material then cut a 20mm square piece of tin from a drinks can, pierce it with a darning needle, then create a square hole in the centre of your box to attach this with either black electrical or gaffe tape.

With a dark jacket or piece of black fabric take your obscura outside to a suitable view, use your fabric/ jacket to create an enclosed dark tent around your head and your tracing paper screen – leaving the end with the hole open to the world and pointing toward the view you wish to capture. Give your eyes a few minutes to adjust and you will begin to see the world appear on your tracing paper screen, upside down and back to front.

Note: hold the obscura at arms length away from your face and look at the screen – if you hold it too close and try to

Materials required:

a light-tight tin/ box; matt black paint and small brush; electrical or similar tape; darning needle; used aluminium drinks can.

Select your box or tin, metal tins such as sweetie tins, catering sized coffee tins and cracker/ biscuit tins are ideal. Paint the inside of your box or tin with matt black paint, blackboard paint is ideal. This is to prevent light reflecting inside the tin during exposure and causing flashing (over developed spots) in your photographic negative.

Select the location for your pinhole lens; it should be central to the side it's located on and in the same way as with the portable obscura the distance between your lens and your paper surface will effect the type of image you get. It's a good idea to try different tins and also different surfaces on the same tin/box (you can have more than one lens) for your photos so you see what different types of images you can make.

Once you have selected where your lens will be, create it by one of the following ways: if you are using a tin, you can pierce a hole for your lens directly into the tin with a darning needle and a thimble over your thumb (so you can apply pressure). If you are using a box, then cut a lens plate from an aluminium drink can about 20mmx20mm (as with the portable obscura) and make a pinhole lens using a needle/ pin, then affix this to the box with gaffe or electrical tape over a suitably cut hole.

Create a lens cap with either some electrical tape or a small cardboard flap to fit over your lens – make sure this is completely light tight when closed.

Now you are ready to make a photo. In a darkroom, under safelight place your photographic paper inside your camera securely with a little double sided tape or folded over masking tape at each side, directly opposite the lens and ensuring the light sensitive emulsion (shiny side) is facing out. Ensure your lid is on securely and there are no light leaks.

Choose your spot for taking your photo – bright light is recommended, outside on a sunny day is ideal or next to a light window or with the aid of some spot lights if inside. Make sure you can sit your camera securely on the ground/ wall or table, if it is windy make sure to place something heavy on top to stop it moving, or hold it down steadily

with your hand. It is not recommended that you attempt to hold your camera, as the exposure times are always quite long and extensive camera shake will occur. The length of your exposure will depend on how large your pinhole is; size of your camera; the available light; your view and what paper you are using. There is a scientific calculation you can do to determine exposure but that requires very accurate measurement, an understanding of f-stops and a professional light meter, so trial and error is what we recommend to the absolute beginner. As a starting guide for experimenting, if using paper as your negative, an average sized pin for lens, with an open view on a Sunny day: 15 - 30 seconds, more overcast 1 - 2 minutes. Make a note of your exposure times, the weather conditions and the view, so you can begin to estimate with increasing accuracy the exposure time for your pinhole camera. Develop your photographic paper in the standard way under safe lights.

If using paper as your negative, try scanning this into the computer and experiment with the contrast levels and inverting (making a positive) in Photoshop – you can get amazing detail from a negative that looks quite plain. This also allows you to make digital enlargements from your paper negatives.

Artists using pinhole photography and camera obscuras:

Iseult Timmermans
www.streetlevelphotoworks.org/streetlevel/archive/2009/multi-story-obscura/redrdobscura.html

Ilan Wolff
www.ilanwolff.com

Abelardo Morell
www.abelardomorell.net

Justin Quinnell
www.pinholephotography.org

There is an International Pinhole Photography day on April 24 2011: www.pinholeday.org
