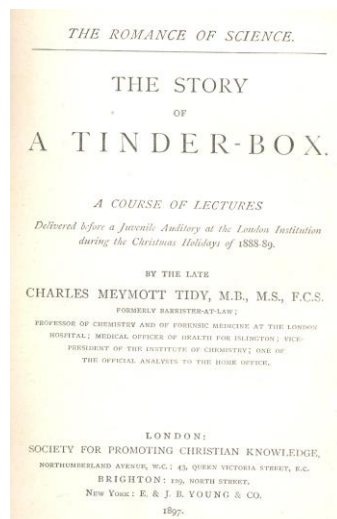


Making fire with Flint and Steel



History of flint, steel and the tinder box:

In South Africa the tinder box is known as a "Tontel Doos" and has been used starting fires with flint and steel for decades. The history and basic working of the European tinder box is well portrayed in the book "The Story of a Tinder Box" by Charles Meymott Tidy written in 1897. The following is an extract from that booklet.

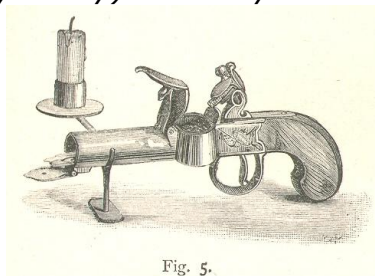


"The tinder-box constitutes one of the very earliest methods, no doubt, of obtaining fire. I have searched for some history of the tinder-box, and all I can say for certain is that it was in use long before the age of printing. I have here several rare old tinder-boxes. I intend showing you in the course of these lectures every detail of their construction and use. I have no doubt this very old tinder-box that you see here (Fig. 3 A) was once upon a time kept on the mantel-piece of the kitchen well polished and bright, and I do not doubt but that it has lit hundreds and thousands of fires, and, what is more, has very often been spoken to very disrespectfully when the servant wanted to light the fire, and her master

was waiting for his breakfast. I will project a picture of it on the screen, so that you may all see it. There it is. It is a beautiful piece of apparatus. There is the tinder, the steel (Fig. 3 b), the flint (c), and the matches (d) complete.



It was with this instrument, long before the invention of matches, that our grandfathers obtained light. I want to show you how the trick was managed. First of all it was necessary to have good tinder. To obtain this, they took a piece of linen and simply charred or burnt it, as you see I am doing now (Fig. 4). (Cambric, I am told, makes the best tinder for match-lighting, and the ladies, in the kindness of their hearts, formerly made a point of saving their old cambric handkerchiefs for this purpose). The servants prepared the tinder over-night, for reasons I shall explain to you directly. Having made the tinder, they shut it down in the box with the lid (Fig. 3 A) to prevent contact with air. You see I have the tinder now safely secured in my tinder-box. Here is a piece of common flint, and here is the steel. Here too are the matches, and I am fortunate in having some of the old matches made many years ago, prepared as you see with a little sulphur upon their tips. Well, having got all these etceteras, box, tinder, flint and steel, we set to work in this way: Taking the steel in one hand, and the flint in the other, I must give the steel a blow, or rather a succession of blows with the flint (Fig. 3 B). Notice what beautiful sparks I obtain! I want one of these sparks, if I can persuade it to do so, to fall on my tinder. There! it has done so, and my tinder has caught fire. I blow my fired tinder a little to make it burn better, and now I apply a sulphur match to the red-hot tinder. See, I have succeeded in getting my match in flame. I will now set light to one of these old-fashioned candles – a rushlight- with which our ancestors were satisfied before the days of gas and electric lighting. This was their light and this was the way they lighted it. No wonder (perhaps you say) that they went to bed early.

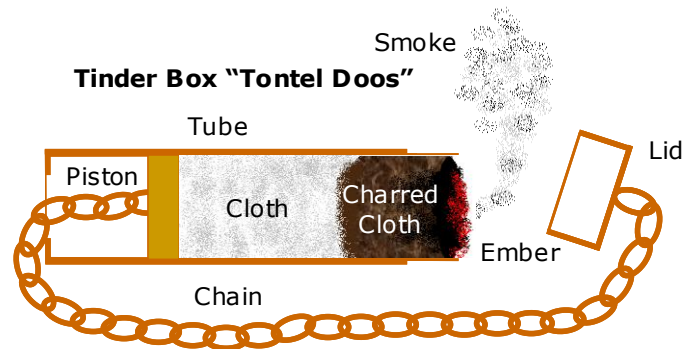


I should like to draw your attention to one other form of tinder-box, because I do not suppose you have ever seen these kind of things before. I have here two specimens of the pistol form of tinder-box (Fig. 5). Here is the flint, the tinder being contained in this little box. It is the same sort of tinder as we made just now. The tinder was fired with flint and steel in the same way as the old-fashioned flint pistols fired the gunpowder. And you see this pistol tinder-box is so constructed as to serve as a candlestick as well as a tinder-box. I have fired, as you perceive, my charred linen with this curious tinder-box, and thus I get my sulphur match alight once more!"

Basic theory of how flint, steel and the tinder box works:

Flint or quartz rock when split will render an extremely sharp and smooth cutting edge, far better than any knife. This edge is ideal to shave off slithers of carbon steel from the steel striker. When a hitting, shaving action is used, the energy is transferred resulting in red-hot slithers of heated carbon steel, which then appear as bright sparks. Only one of these red-hot slithers of carbon steel is needed to ignite a piece of charred cloth. Yes, it's not the flint that creates sparks, it's the slithers of carbon steel.

Note: Quartz or quartzite is a hard white to clear stone that, when chipped into pieces, forms a very sharp edge. These stones can be found in most areas in South Africa and is also locally known as "Vuur Klippe".



Now, the main function of the tinder box, as shown above, is to house and produce charred cloth. Charred cloth is a piece of cotton cloth that has been heated, burned, starved of oxygen and thus changed into a form of "cotton charcoal".

This is achieved in the tinder box by: 1) filling the tube (loosely at the top) with cotton cloth until the piston bottoms out, 2) igniting the cotton cloth and blowing oxygen onto the growing ember, 3) once the ember is well established close the lid and hang the tinder box by the chain, lid upside down, 4) the ember will continue to smoulder and heat the cotton cloth until the oxygen is depleted, forming a section of charred cloth in the closed tube.

In the old days, out in the bush, they used "Tontelbos" or "Tontelblaar" which is from the *asclepias* and *apiaceae* species respectively instead of cotton cloth.

Note: The slow match works similar to the tinder box. Instead of using a lid, you pull the cotton wick back into the tube and the next piece of charred wick is formed.

Making a fire using flint and steel:

Step 1:

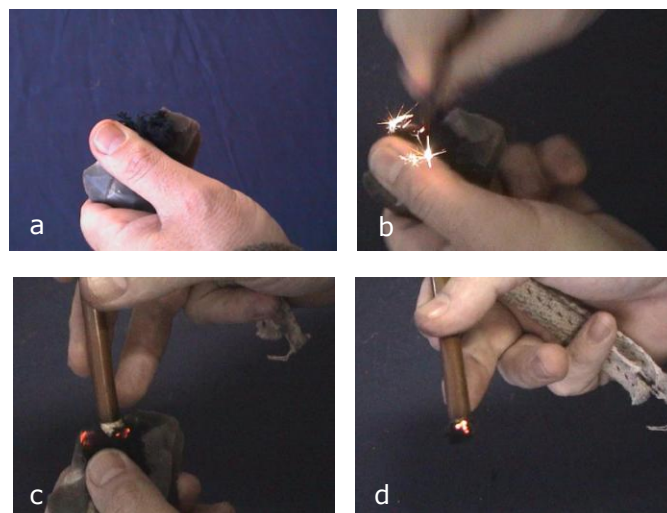
We need to prepare the tinder nest. Take a piece of hemp and pull and divide it into small tufted pieces like cotton wool, as per photo (a). Now, shape the plucked out hemp into the form of a bird's nest, as per photo (b), and place a piece of charred cloth taken from the tinder box, shown in photo (c), in the centre.



Note: When in the veld, the hemp and charred cloth can be replaced with fine dry tinder that is available.

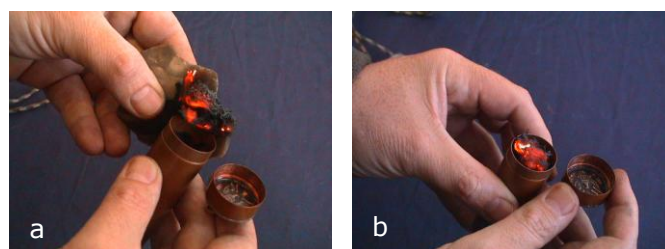
Step 2:

We will now ignite the slow match by using flint, steel and charred cloth. Take a piece of charred cloth from the tinder box and place it onto the flint held in your left hand, as per photo (a). Strike down hard with the steel striker in your right hand onto the sharp edge of the flint producing sparks onto the charred cloth, as shown in photo (b). Place the charred wick of the slow match onto the glowing char cloth and gently blow until an ember forms, as shown in photo (c). Continue blowing onto the wick until a stable glowing and smoking ember is formed, as shown in photo (d). Your slow match is now ready for use.



Step 3:

Put down the smouldering slow match, don't worry it won't go out, that's why it's called a slow match. Place the glowing charred cloth still on the flint into the tinder box, as per photo (a). Blow lightly until a good ember is formed, as per photo (b). Then close the lid and follow the steps as previously explained in the basic theory section above.



Ok, now let's make the fire.

Step 4:

Pick up the smouldering slow match and place the glowing ember onto the charred cloth in the tinder nest and lightly blow oxygen over it igniting the charred cloth as per photo (a). Quickly put down the slow match after pulling the glowing cotton wick back into the tube. Fold the tinder nest over the glowing charred cloth and continue blowing air into the nest as per photo (b). The tinder nest will start smoking. Blow harder and harder. Don't stop until the tinder nest suddenly bursts into flames as per photo (c). Yes, you've done it ! Flames to start a big fire. All you have to do now is to put this burning tinder nest into your pre-prepared fire pile and that's it, a fire started with flint and steel.



My grandfather told me about a "Tontel Doos", and since then the workings of a "Tontel Doos" have fascinated me. Well for those of you who also always wondered - now you know how to make fire with flint, steel and a tinder box, good luck and enjoy.



Note: You can purchase a complete flint, steel, tinder box and slow match set, as used in the article above from Gavin "Slow Match" Margrate at e-mail address plumcrazy@absamail.co.za or phone him on +27 (0)82 469 3236.

Thanks to Dr Riana Geschke for the photos taken. My side kick, Wessel Croukamp who assisted with the fire making.

Dr Wallace Vosloo