

How to Make Fire Without Matches

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Kinds of Wood

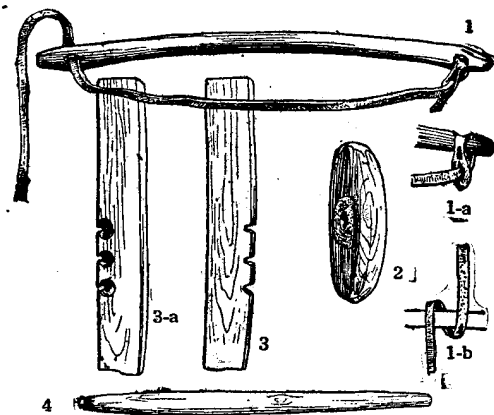
The best wood is dry and long seasoned till it begins to show signs of decay, as in a dead branch. It must not be gummy, or resinous or fibrous like walnut or pine, or acid like oak, ash, and chestnut. The test for all wood is that the dust ground off is real dust and not gritty. Try the dust in the fingers and if it feels sandy try some other wood. Elm, linden, poplar, soft maple, sycamore, and buckeye will often furnish good wood. The best wood is of the roots of the cottonwood of the west and of the willow.

Root wood is better than stem wood as a rule. The flowering stalks of the yucca are excellent for fire making.

Scouts should be on the lookout for wood and tinder. There is nothing so good as questioning nature yourself; you may thus become a discoverer.

The Tools

A flat piece of wood or a branch flattened on two sides and not over $\frac{3}{4}$ inch thick is selected for the hearth or lower piece. It may be of any length, but long enough to set the foot firmly on one end. The spindle should be whittled out tapering to both ends, not over inch in diameter at the middle, and 12 inches long. It will wear down and can be used as short as 4 inches. The ends should be rounded, not sharp.



1. Drill bow; 1-a. Applying the thong; 1-b. position of cord on spindle
2. Hand rest for top of spindle
3. Hearth showing slots; 3-a. Hearth showing pits and slots
4. Spindle of correct form

The bow is 17 inches long, inch wide, $\frac{1}{2}$ inch thick, and has a curve inch high on the belly. It can thus be whittled out of a strip $\frac{1}{8}$ inches wide. The ends are swelled a little and holes put through for the cord.

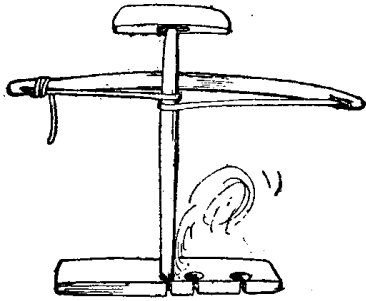
The thong may be of belt lacing $\frac{5}{16}$ inch wide or of any good pliable leather. One end of the thong is slit, put through the hole, the other end put through the slit and drawn down. Merely run the thong through the other hole in the bow. The nut is a block 6 inches long, $1\frac{1}{2}$ inches square. Set in the middle a piece of soapstone and make a small smooth pit in the soapstone.

As to the tinder, or first swaddling clothes of the fire, this is of many kinds and may be found anywhere by any scout who sees that soft, finely divided, inflammable material is needed. Cedar bark, dry grass, willow or other catkins, leaves, wood scrapings, a bird's nest, etc., etc.; whatever comes handy, rubbed and reduced to a fluffy mass. Have ready also a bunch of long-stemmed grass, a strip of bark, or anything that can be bent over the new fire.

Fire

Now to make fire: Scratch or nick a small place on the upper surface near the edge of the hearth and set it on firm ground or on flat rocks. If the ground is soft, imbed a rock under the hearth where the pressure comes. Take the spindle, upper end from you, in the left hand, bow in right hand, string to left. Lay the spindle diagonally on the cord and give the bow a half turn. Grasp both so, and set the end

of the drill on the hearth near the edge. Make a few turns to start the socket, then cut a clean groove down the edge of the hearth well into the socket. Take the tools up again and run the drill easily at first, and when it bites a little put on more pressure. When the dust pushes out of the slot as a compact



5. The fire drill set up ready for operation

bunch you likely have fire. If so, fan it gently for a moment with the hand till the fire appears and transfer it to the finely divided mass of fuel which has been laid on a strip- of bark or grass stems, fold over and wave with gentle circular motion in the air and it will burst into flame. Bows are of two kinds, elastic and rigid. If elastic the spindle can be set in on a stretched cord, but this sort of bow does not give good results. In the rigid bow the spindle is set in with a loose cord, the cord is then drawn tight and given a turn around under the hand against the bow to secure it. Then reach forward the thumb and pinch the cord down against the curved forefinger. By moving the thumb up and down, the cord is tightened or slackened as desired. A little practice will show the relation between the pressure on the top of the spindle and the tension of the cord. This has to be learned and

thoroughly under control before fire can be successfully made. Keep the spindle straight up and keep the bow away from it. The spindle must not joggle or the hearth shake, or you will lose the fire. Both fire-making pieces may be of the same wood;. indeed it is better that they should be the same. Some tribes, when their wood is not long enough to make a spindle, splice a bit of the good wood in at the point of another piece.

From the BSA Handbook For Boys,
32nd Edition, 1925