

How a Boy Scout makes fire without matches

This article is from the 1919 book, **Everyday Science with Projects** by William H. Snyder (which is why it starts with Figure 5). If you attempt this project to start a camp fire, use the appropriate precautions that you would use with any fire, and make certain that you are in an approved area for camp fires.

"Five things are necessary to produce a rubbing-stick fire: a drill or spindle, a fire-block or hearth, a hand-socket, a bow, and tinder.

In choosing wood for making the drill and fire-block, great care must be exercised. The wood should be dry and long-seasoned, but sound. Gummy and resinous woods should be avoided. A test for good wood for this purpose is that the wood-dust ground off shall be smooth to the touch, not gritty or sticky. Two of the best and most widely distributed woods are cottonwood and willow. Better even than these are the cedar, the cypress, or the tamarack, if they can be had. If none of these is at hand, try soft maple, elm, poplar, sycamore, or buckeye.



Figure 5

Drill. - Out of a straight dry branch or piece of seasoned wood, whittle a roughly rounded spindle, about 12 inches long, and not more than 3/4 inch in diameter. Sharpen the two ends of the stick, as shown in Figure 5.



Figure 6

Fire-block. -Take a piece of wood not more than 12 inches long, 2 or 3 inches wide, and not more than 3/4 inch thick. On one side of this board, well toward one end, cut a notch 1/2 inch deep and bevel it slightly toward the under side of the board. About 1/8 inch, or less, from the tip of the notch make a little hollow or pit in the board, as shown in Figure 6, A.

Hand-socket. - If nothing better is at hand, take a pine or hemlock knot that will just fit comfortably into the palm of the hand. Make a pit in the center of one of the flat surfaces of the knot, about 1/4 inch in diameter and 1/4 inch deep.

If you are going to practice fire-making on camping trips, you will find it a great saving of time to have a socket made for your permanent use. Take a solid block of wood 5 or 6 inches long, 1 3/4 inches wide, and 1 1/2 inches thick. Set in the middle of one face of this block a piece of soapstone or marble 1 inch square and about 3/4 inch deep. In the center of this piece of stone make a small smooth pit, 3/8 inch wide and 3/8 inch deep. Smooth and round the opposite face of the block so that it will fit your palm comfortably and can be grasped firmly. The socket is now ready for use (Figure 7).



Figure 7



Figure 8

Bow. - For this, any slightly curved *rigid* branch or stick, 18 to 24 inches long, may be used. Fasten a thong of buckskin, belt-lacing, or of any pliable leather, about 3/8 inch wide, to the bow, as shown in Figure 8. The thong should be just long enough so that when it is given one turn around the drill it will be stretched taut (Figure 9).

Tinder. - Any dry, finely divided material that readily bursts into flame from a spark is called tinder. Shredded cedar bark, a wad of dry grass, crumpled dry leaves, willow catkins, scraped cedar or spruce wood will serve admirably. Any observing person will be able to find plenty of good tinder in a forest.

In addition to this tinder, which is used to nurse the glowing spark into flame, the fire-maker should have at hand a collection of twigs, long-stemmed dry grass, splinters, slivers of dry bark, etc., to be used as kindling for the larger fuel that is to follow.

To Make Fire. -Set the fire-block on firm ground or on flat rocks or on any foundation where the block can be kept from slipping or joggling. Slip a thin chip under the notch of the hearth.

Turn the thong of the bow once around the drill. If the thong is of the right length, it will now be taut.

Set one point of the drill into the pit near the point of the notch of the fire-block, fit the upper end into the hand-socket, and with your left hand hold the drill perpendicular to the block. Anchor the fire-block with your left foot, and steady your left hand by resting your left wrist against your left shin. This is to enable you to *keep the drill steadily in an upright position* (Figure 9).

Now with the right hand draw the bow slowly and steadily back and forth the full length of the thong, pressing lightly on the hand-socket. Keep the bow horizontal, and do not touch the drill with it as you saw back and forth. The twirling motion of the drill soon makes it bite into the block, boring out powdered wood. When it begins to smoke, put a little more pressure on the socket and drill faster. When the dust comes out in a compact mass and the smoke increases to a considerable volume, you probably have the spark.

Carefully lift the fire-block so as to leave the smoking powder undisturbed on the chip. Gently fan this with your hand into a bright glow. Then put a wad of tinder gently over the glowing powder and blow until the tinder bursts into flame. Follow this with the kindling and your fire is started.

N. B. If you are left-handed, you will probably reverse the directions for employing the right and left hands."

