A Small Folding Sawbuck

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Years ago I got tired of cutting limbs/logs on the ground, so I designed and made a small folding sawbuck. It has proven useful and folds up out of the way when not needed. I kept its overall height low to make it easier for me to get heavy logs onto it for cutting. Here's a picture:

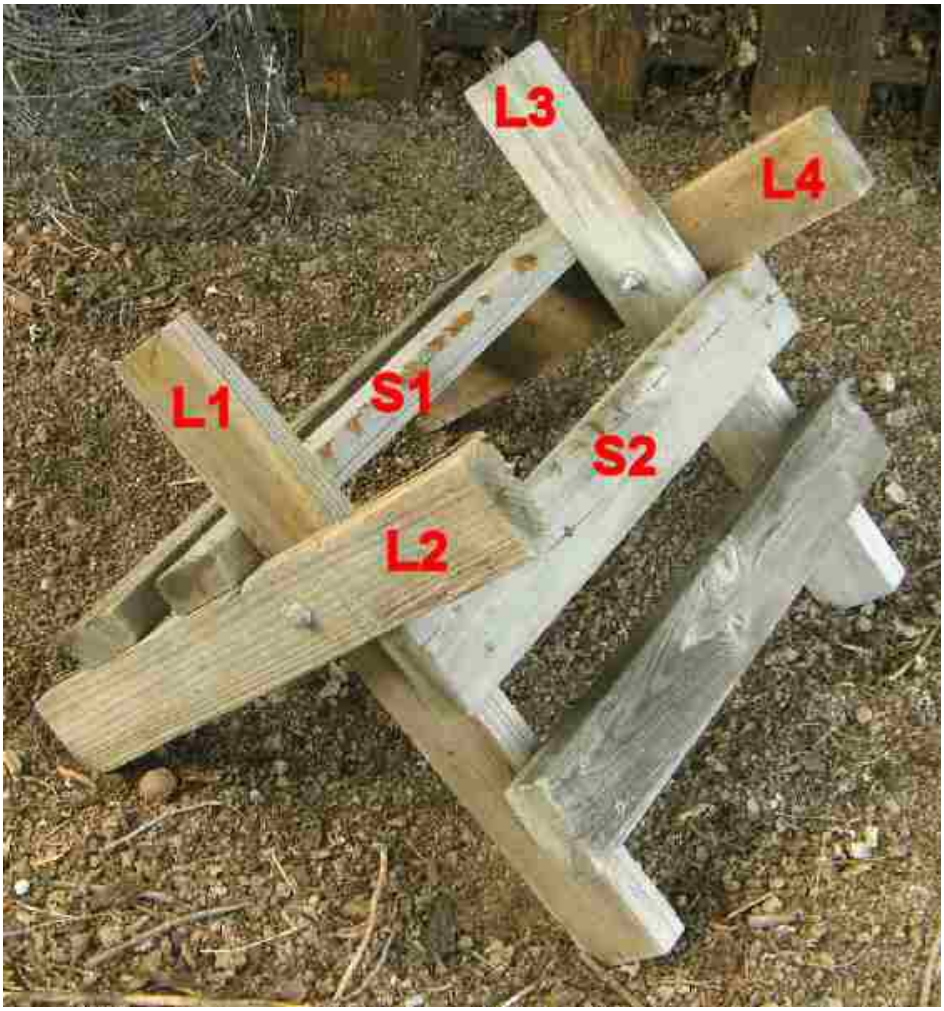


Figure 1

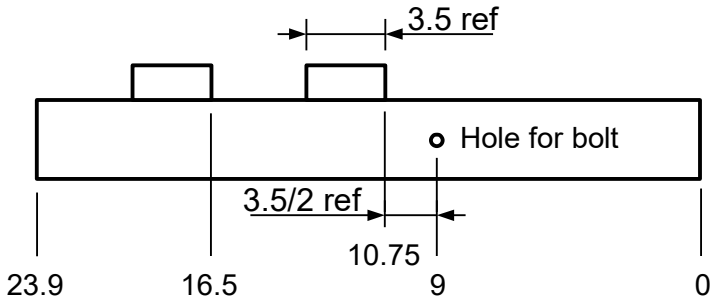
It's made from 8 pieces of 2x4 material; each piece is nominally 24 inches long. Thus, you can make it from two eight foot 2x4s. I can tell I made mine from some old 2x4s salvaged from a fence I took down.

Legs L2 and L4 rotate around the bolts until they are stopped against stop S2 (legs L1 and L3 are stopped by stop S1 in a similar fashion). I used two 5/16 inch bolts (with washers on each side) for the pivot points. A nylon locknut ensures the legs are free to turn, but the nut won't come loose.

Here's a picture of the sawbuck folded up for carrying/storage:

This folded picture also shows you how you should build it after the wood pieces are cut. Have someone hold the two legs together (or use some clamps or temporarily screw them together) after you've marked the hole location and drill the pair of legs at the same time so you'll be sure the holes will line up. Install and snug the bolt, lay the leg pairs flat on the ground and screw the stretchers to them.

Here are the key dimensions in inches of the construction:



You can adapt the design to your needs; just make sure you use appropriate dimensions so that the sawbuck opens up to be a stable platform for cutting.

Note I give the length of each board as 23.9 inches. Here's where this number came from[1]. My saw blade's kerf is about 0.1 inches. The most common size of 2x4 is 8 feet (96 inches) long. Therefore, one 8 foot 2x4 can be cut into four legs with 3 cuts. The resulting length x of each piece after accounting for kerf loss k is

$$3k + 4x = 96$$

or

$$x = 23.92$$

Here's a materials list:

1 I don't remember if I used two 8 foot 2x4s or just some scrap material I had laying around.

Item	Qty	Description
1	2	2x4, 8 feet long
2	2	Bolt, 5/16, 4 inches long
3	4	Washers, flat
4	2	Locknut, nylon
5	16	3" long wood screws

The materials cost should be under $10 and even less if you can use scrap stuff you probably already have. Using Douglas fir, the mass should be under 9 kg (under 20 pounds).

I use Torx drive 3 inch long #9 bugle head wood screws, as they are my favorite construction fastener. These fasteners include a cutting slot at the tip to let the screw cut its own hole. However, since you'll be installing these near the end of a 2x4, the board will almost certainly split if you don't drill a clearance hole in the stop pieces.

As this is a rough carpentry project, the only tools you need are a saw, drill/bits, and a tape measure. You can just cut the lumber by eye, but it looks better if you mark and cut things off square. You could cut a 45° bevel on the bottom of the legs so that it sits flat on the ground, but I didn't bother, as this sawbuck is usually sitting on dirt or lawn.

Four screws hold each stop to two legs, two screws per leg. The stops on one side of the sawbuck are screwed to the two inner legs and the stops on the other side are screwed to the outer legs. Note the placement of screws in Figure 1.

I wouldn't mind having the legs lock together when the sawbuck was folded up for storage, as it sometimes opens up when carrying it. One solution would be to put a 1/4" Rosan insert in one leg and have a 2" long 1/4" bolt screw through the other leg to hold things together. A friction-fit pin could do the same thing. However, the easiest solution is probably to use a big rubber band.

Design changes

Here are some thoughts I've had for the next model I make:

- ♦ Make it taller so I don't have to bend over so far.
- ♦ Add another X so that you can cut between two X's and have the log sit stably after cutting. This might require a bungee cord or rubber strap to hold the log in place.
- ♦ Make a spring-loaded pin that allows you to lock the sawbuck in the folded position so it's easier to carry around.