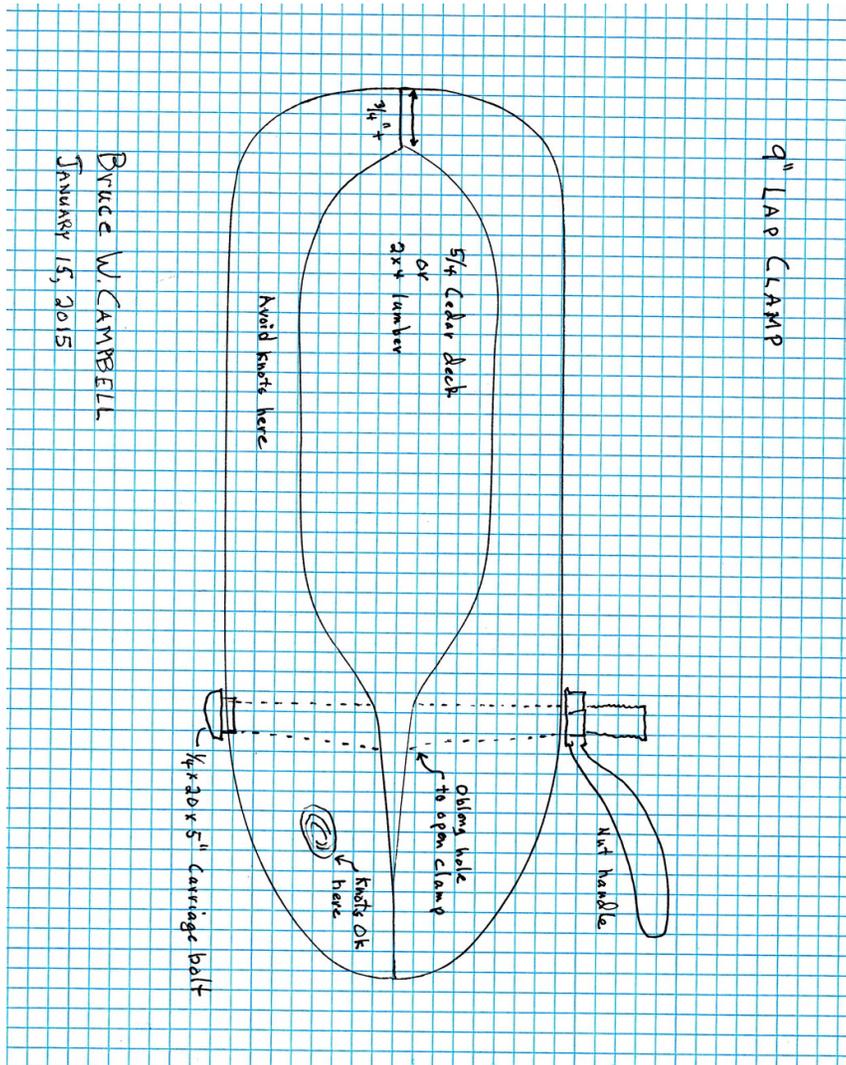




Lap Clamps

By

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Lap Clamps are cut from scrap stock, so exact dimensions are not critical. The more wood one cuts away in the middle, the weaker the clamp, yet the greater the reach and more useful it can be. I recommend making clamps with a center cut so they can reach around at least $\frac{3}{4}$ inch stock while holding $\frac{1}{4}$ or $\frac{1}{2}$ inch plywood. Others add a “hinge” to one end, I do not. I find a hinge slows attachment.



Making Lap Clamps

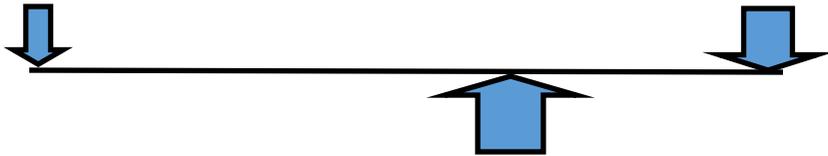
Boat builders can never have too many clamps. Spring clamps are available at Home Depot for a dollar, steel clamps for \$4 and up. Spring and steel clamps do not have the depth needed to reach around a 3” or 4” board (“lap”) and clamp the far edge in place while the glue cures. This is where the wooden lap clamp is most often used. A lap clamp can also be fashioned to make even longer reaches, to reach around sheer rails, or other special needs.

To make a lap clamp we need a length of wood, a carriage bolt, washer and nut. The wood can be a 2x4 scrap, or for this class we'll use 5/4 cedar decking (\$12' for less than \$7 at Lowes). We'll use a 5 inch long 1/4 x 20 carriage bolt, and either a plain nut, or a fancy nut handle. The nut handle makes it look right, but at \$3 each or more, it diminishes the economy of our effort.

Wing nuts work fine, as does a hex nut and wrench. Best price I can find for a true old fashioned nut handle is a Peerless "iron nut handle" \$2.56 plus postage, from MSC International. <http://www.msdirect.com/> Search for "Iron Nut Handle".

The shape of individual lap clamps will vary to meet the eye of the maker and strength desired. The class pattern on the next page has a 2/3 placement for the bolt. This means the force applied at the bolt handle is 1/3 at the clamping surface and 2/3 at the hinge. (E.g.: If the bolt is placed in the center of the clamp, the force would be divided in two, or one half at each end.)

The clamps do not have to have cast iron strength. Clamps need to provide sufficient force to hold two pieces of wood together while epoxy cures. The joint should not be squeezed so hard as to force out all of the glue out resulting in a "starved" glued joint.



Force is inversely proportional to length, so the longer arm can be thinner.



Lap clamp with wingnuts as made by Bob Easton:

<http://www.bob-easton.com/blog/wp-content/uploads/2009/04/clamps-and-gauge1.jpg>

Large Lap Clamps with 10" of reach are holding the seat rail in place on a plywood skiff, while epoxy cures.

These are made from 2x4 lumber and used a simple nut and wrench to tighten.

The center bolts restricted the reach. They developed far more clamping pressure than needed. Based on this experience, I prefer a 2/3 spacing.



Lumberjocks Lap Clamp: <http://lumberjocks.com/projects/74840>

A 'lapstrake' clamp is used in building old-style lapstrake boats. Also known as 'clinker' boat building. A large number of clamps are needed to get a good fit down the length of the planks. Builders of lapstrake boats will commonly make themselves sets of these clamps numbering in the dozens. There are several flavors of these clamps, always home or local shop made to my knowledge. An online search for images of lapstrake clamps will produce many varieties. Since they are specialty clamps used for clamping together the bottom edges of two relatively thin planks, the jaw opening need not be great, but the throat depth must be quite deep.

I have always preferred the kind that can be engaged with one hand. The sort I make have a lever which produces a cam action by turning in a circular socket made to match the heel of the lever.