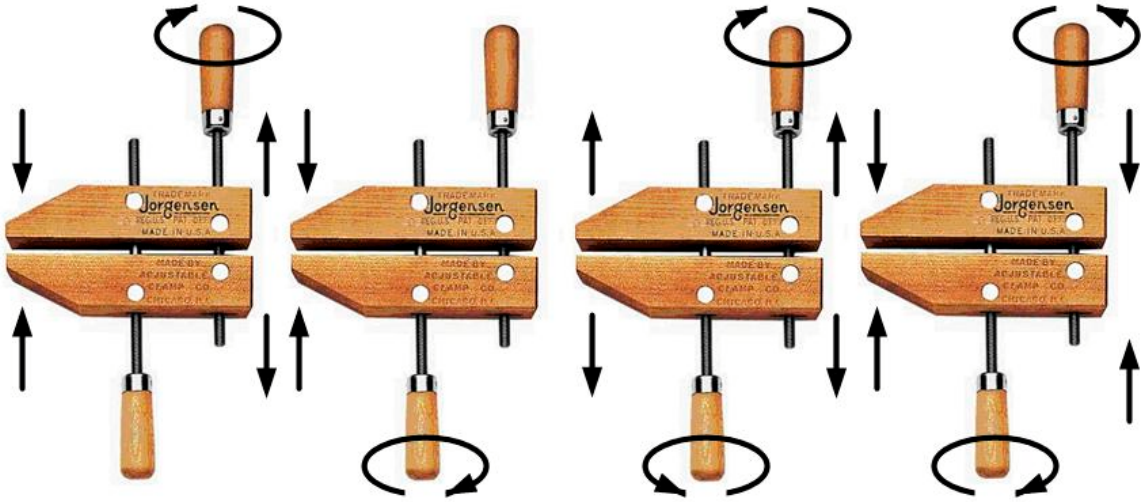
Handscrew Clamp Tutorial

The old fashioned handscrew clamp is probably the most overlooked of the clamps you can have for woodworking.

The clamps are made of two wood (usually a hard wood like maple or hickory) body members of a squarish profile with two steel screws and wooden handles. The wood body members are sort of parallel and tapered at the clamping end. The two screws are threaded almost perpendicularly into both bodies from opposite sides, the threads in steel bushings that have some ability to vary the angle of the screw in relation to the body but the screws stay parallel to each other. Each screw has two threads in opposite handedness, changing in the middle. Rotating each screw by itself will therefore open or close the gap between the two members. Rotating both screws together (if viewed from each individual handle the top handle clockwise and the bottom handle CCW) then the two members close up. Moving one handle alone will make the jaws move apart at one screw point making the jaws less parallel.

The number of combinations of actions compared to a regular clamp with one adjustment can be initially off-putting. It's really pretty simple. Here's a picture summary of the actions of turning one or two of the screws. The first two pics from left to right show how you can close the jaw tips by turning one of the screws. Reverse the direction to open the jaws. The right two pics show how to open or close the jaws in

parallel. Most actions can be done by using one of the right two to move the jaws close and then one of the left two to close the tips on the workpiece.

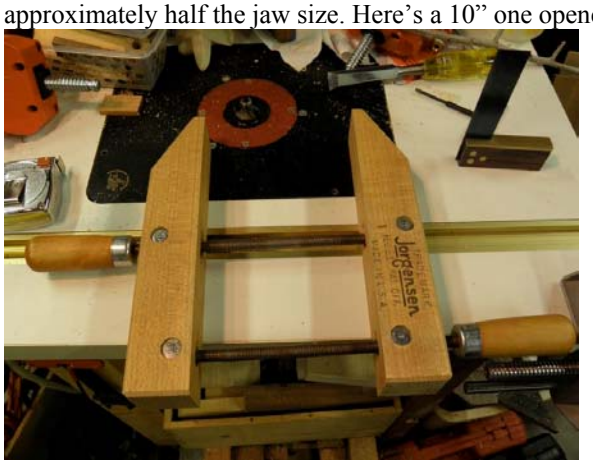


They have been around a very long time, modern ones with steel screws since about the mid-1800s, before the F-clamps and quick grips we all love and use. Antique clamps sometimes come with wooden screws. Even old clamps can be used today, although most often the ones I see seem to hang on the walls of trendy restaurants.

Fortunately modern ones come in multiple sizes, common ones being 6”, 8”, 10” and 12”. I have read of ones up to 24” and as small as 4” but have not seen them for sale. Here’s a pile of an 8”, two 10” and a 12” handscrew clamps., all from different makers. As you can see they have a lot in common and not much difference in design. The 16’ tape measure on top is for size reference. A quick glance at Amazon shows wood hand screw clamps sold by Jorgensen, Bessey, Rockler, IIT, Adjustable Clamp, CRL, Grip-on, Irwin, Peachtree, BR Tools, Big Horn, American Clamp…

The length is an indication of the length of the wooden member, what I call the body size, others call the jaw size. Typically the jaws open to about half the stated body size. And the reach (depth) is also

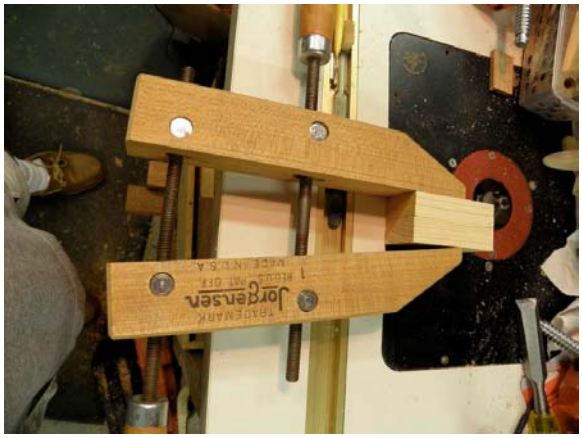
approximately half the jaw size. Here's a 10" one opened to the maximum.



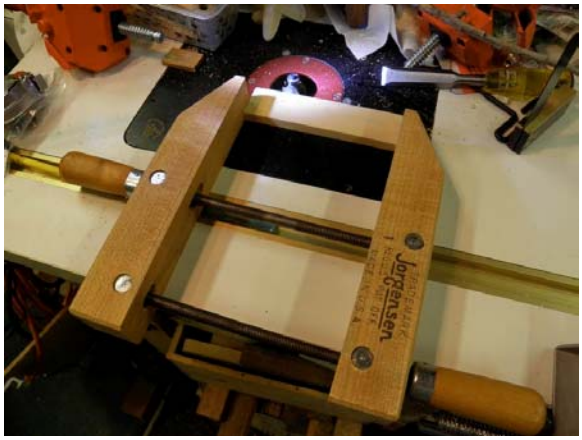
The inserts can rotate a bit due to slots cut around the screws, here's how much they can typically turn (maybe 15-20 degrees?):

By closing them together then you can apply pressure distributed all along a joint which is good for glue-ups:

Or by moving the jaws close but then closing only the near screw, you can apply pressure at the very tips of the clamps:



Notice how the wood bodies lie flat – this can be very useful for holding small items to be routed - Clamp the item tightly with the item and the two bodies flat on the table and hold the clamp, keeping your fingers well clear:



By the way, MLCS sells a "safety small parts holder" #9542 that works basically the same as this but has two vertical handles mounted to it… for $20.

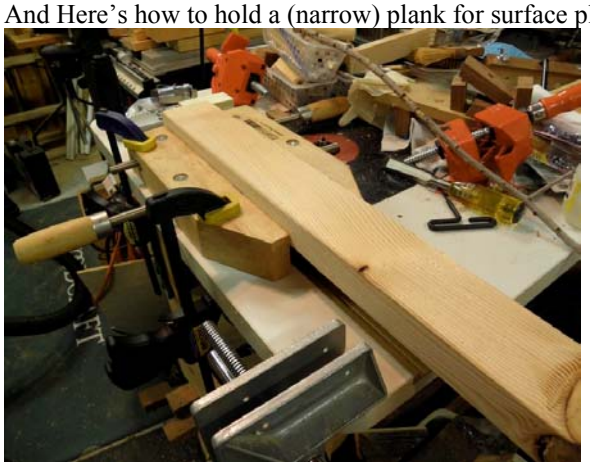
You can use the handscrew clamps like a low profile vise. The following illustrates how to hold small or large vertical pieces for end or edge drilling on the drill press (use a engineers square as shown to make the item perfectly vertical to the table.):

A really nice thing about the flat bodies is that you can actually clamp the clamp to a workbench to hold your work still or more stable (for example when using the drill press), or for edge planing. Here I've used

two Quick Grip clamps to firmly fasten this handscrew clamp to the table:

Here's how you hold a plank for edge planing or edge work:

And Here's how to hold a (narrow) plank for surface planing or surface work:



Special Trick: unfortunately the screws don't have a quick release feature allowing you to change the opening by large amounts except by turning the screws. Here's a way to make many turns quickly while keeping the jaws relative to each other. Hold them on opposite sides and crank them like a bicycle,

forwards to close up the jaws, backwards to open the jaws::

Pros of handscrew clamps:

- Inexpensive
- Versatile
- Clamping area can be large spreading out the forces
- Can apply lots of pressure
- Non-marring of workpieces
- Apply pressure at one point or distributed along length
- Can hold work in ways similar to a vise.
- Stack nicely for storage
- years old proven design dating to the mid-1800s (with metal screws)

Cons:

- Tricky to use, you have to adjust two screws simultaneously to close effectively on an object – a little more coordination required than with one-screw clamps
- No quick release, slow to close the opening from maximum to minimum, you have to turn the screws the whole distance.
- Bulky because the screw handles stick out so far
- heavy

Probably a pair would be a good starting point for your shop – get a 6” and a 10” or maybe just an 8” or 10” if you are really limited in funds.

Handscrew clamps do things in a way most other woodworking clamps don’t. They are versatile and inexpensive. The 6”, and 8” and 10” clamps are frequently found for under $10. Rockler seems to have a big sale on select sizes from time to time. Right now (Aug 2012) they are selling 8” clamps regularly $12 for $6.99 each. I have ones I’ve bought on sale from Penn State Industries, Rockler, Jorgensen (Adjustable Clamp Company), and even Harbor Freight.