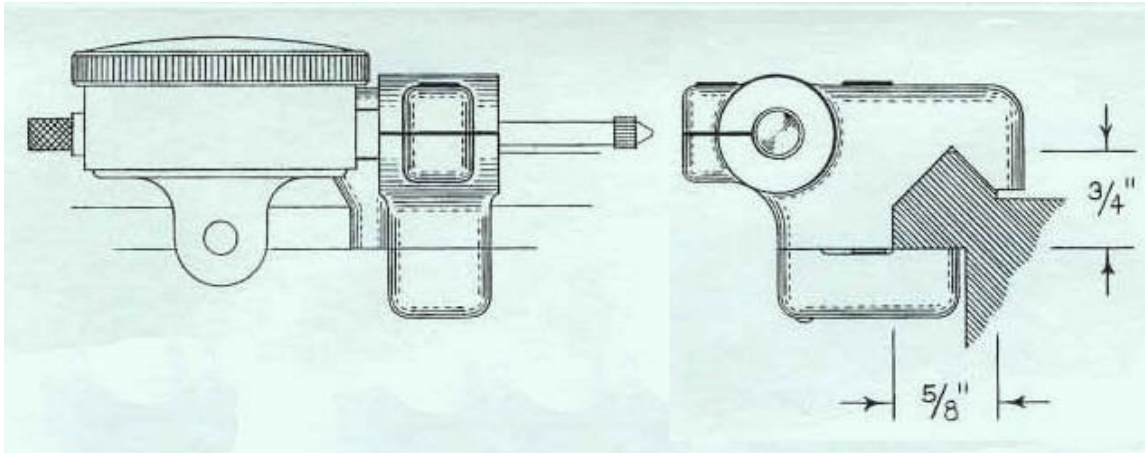


## Machining The MLA-8 Indicator / Saddle Stop

I recently decided it was high time I quit cursing my micrometer carriage stop and make myself a bracket for mounting a dial indicator. I had a dial indicator on my previous SB lathe, and it was a very useful accessory. While a positive stop for the carriage is sometimes preferable, I've found that for most of my work, the dial indicator is much more useful for easily and precisely locating the carriage along the ways.

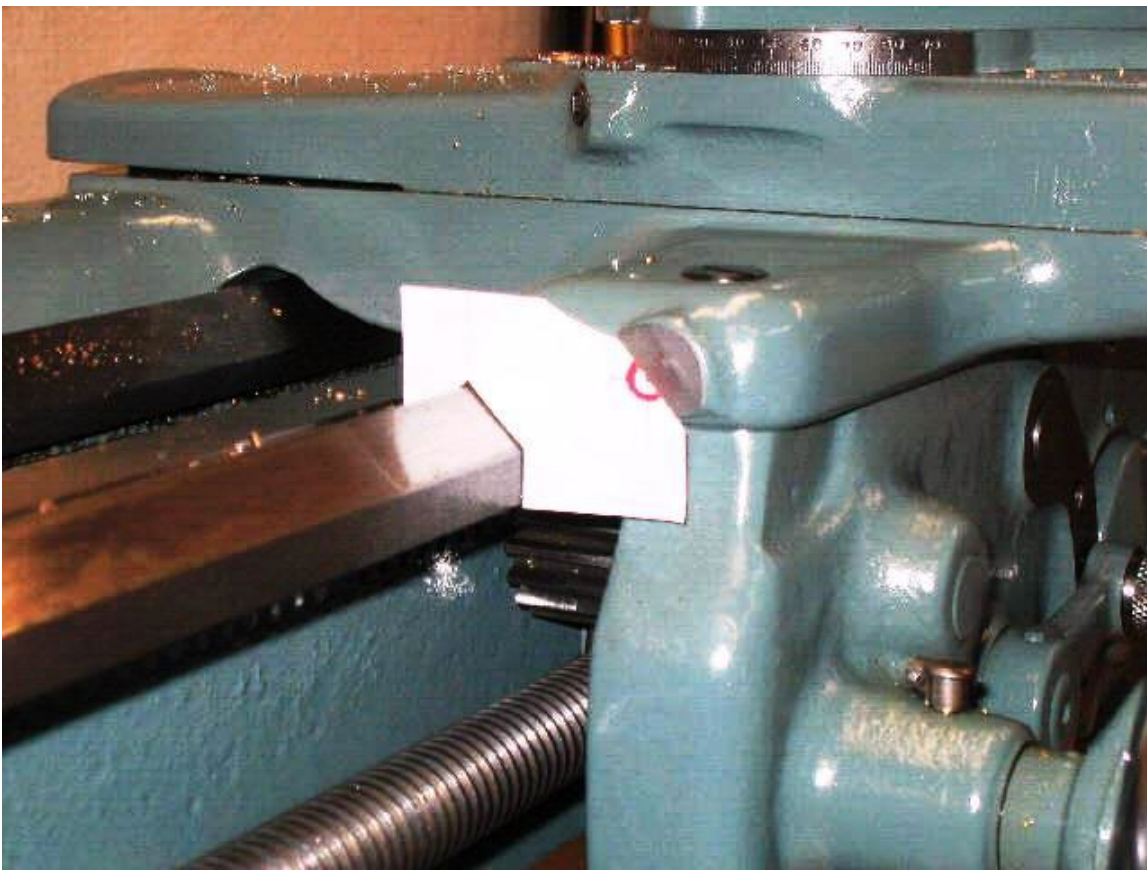
Such brackets can be readily machined from metal bar stock, but I prefer the [Metal Lathe Accessories MLA-8](#) indicator/saddle stop bracket, for its streamlined design and classic look:



It's a fun little project that can be completed in a couple of evenings. And for those of you out there who don't like machining cast iron... fine, I say, that leaves more for the rest of us!

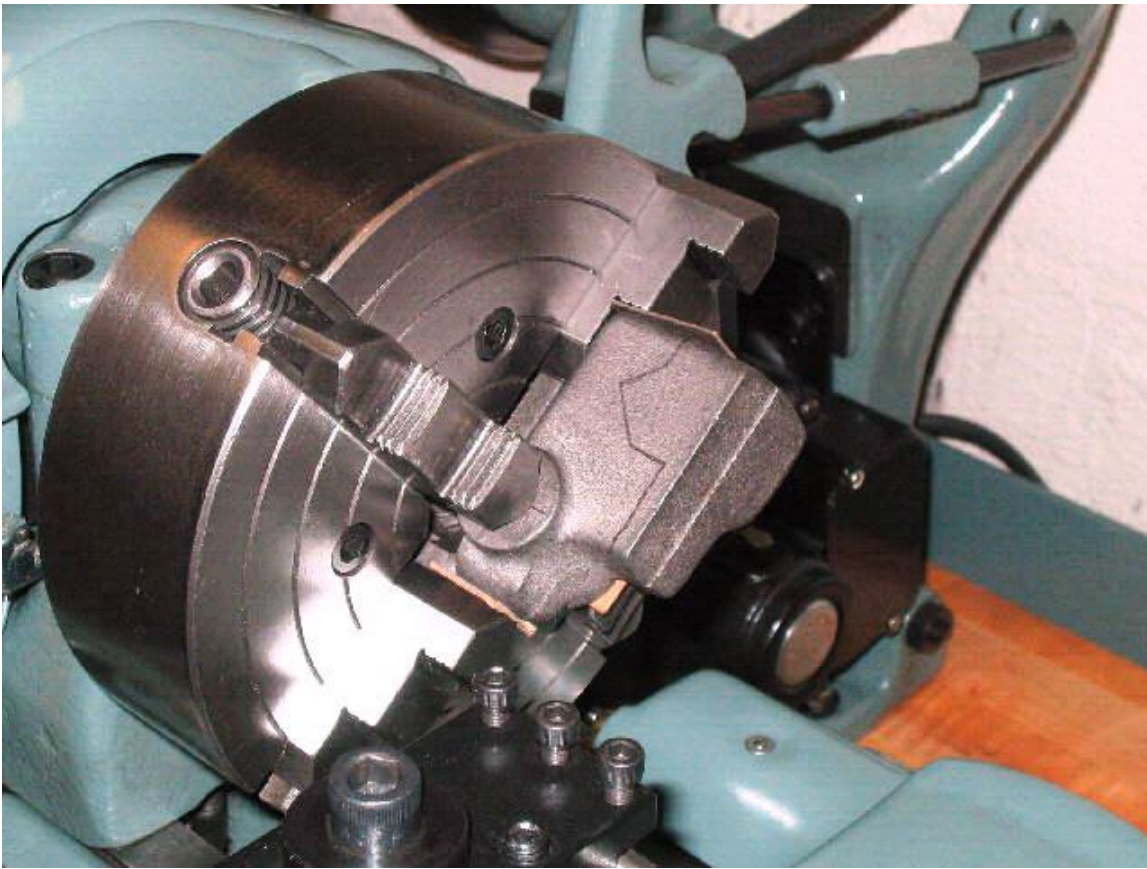
If you have never machined an iron casting before, it can be a bit of a challenge to figure out the best machining approach. One has to carefully judge material allowances and pay close attention to how the Unmachined surfaces relate to those which will be machined. It's a kind of knack that one slowly develops with experience, and I enjoy the challenge. This project, being simple and forgiving, makes an ideal first project for the novice.

The MLA-8 bracket casting has a generous machining allowance to fit a variety of bed-way sizes and configurations. I found that the simplest way to transfer the bracket contour to the casting was to start with a paper template, trimmed to fit the front bed-way, and marked with the approximate location of the indicator centerline:



The bracket contour can then be traced on the casting, such that the indicator location is centered on the round casting boss. This is just to get us close -- there will be a bit of cut-and-try when the time comes to fit the bracket to the bed-way.

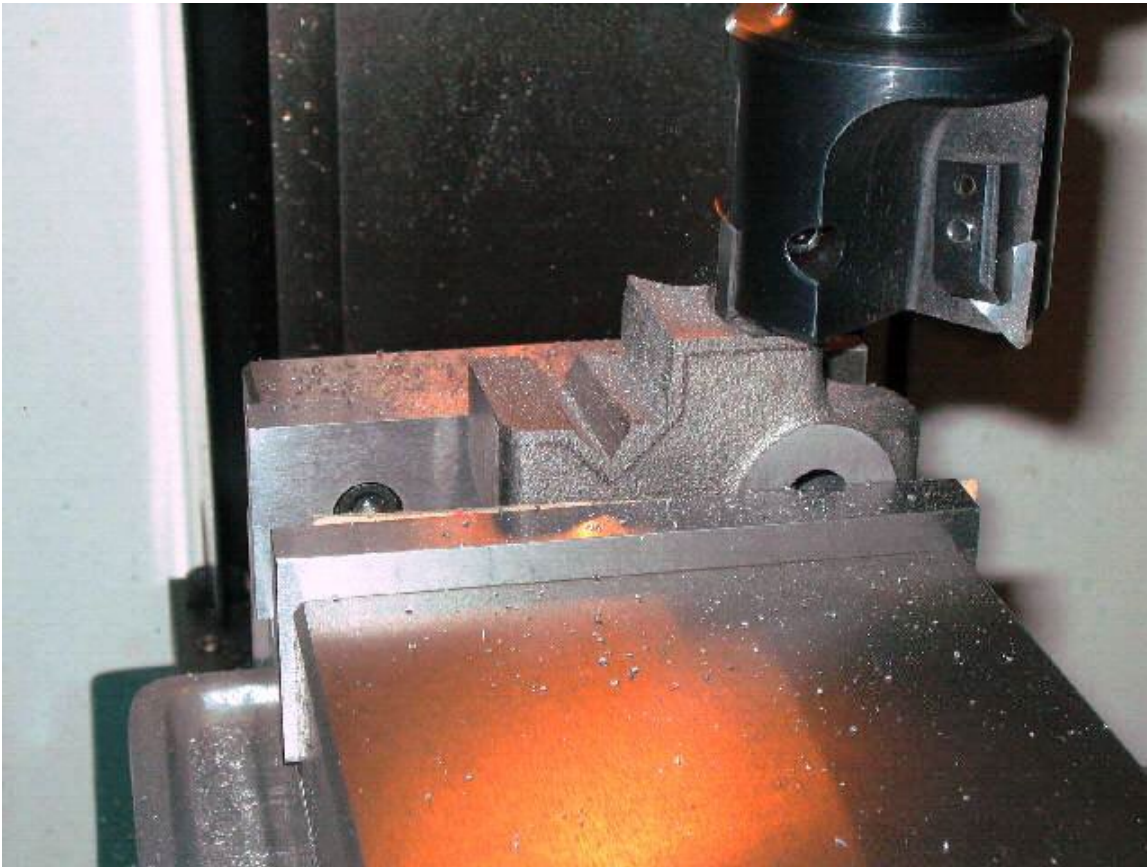
I started this project just before getting my new bench mill, so my initial cut on the bracket casting was done on the lathe. The 4-jaw chuck setup shown below locates primarily off the boss faces, which are nicely parallel to each other, as well as the sides of the bracket casting. Secondly, the jaws locate on the front and rear of the casting, to establish these surfaces as reasonably vertical in the finished bracket:



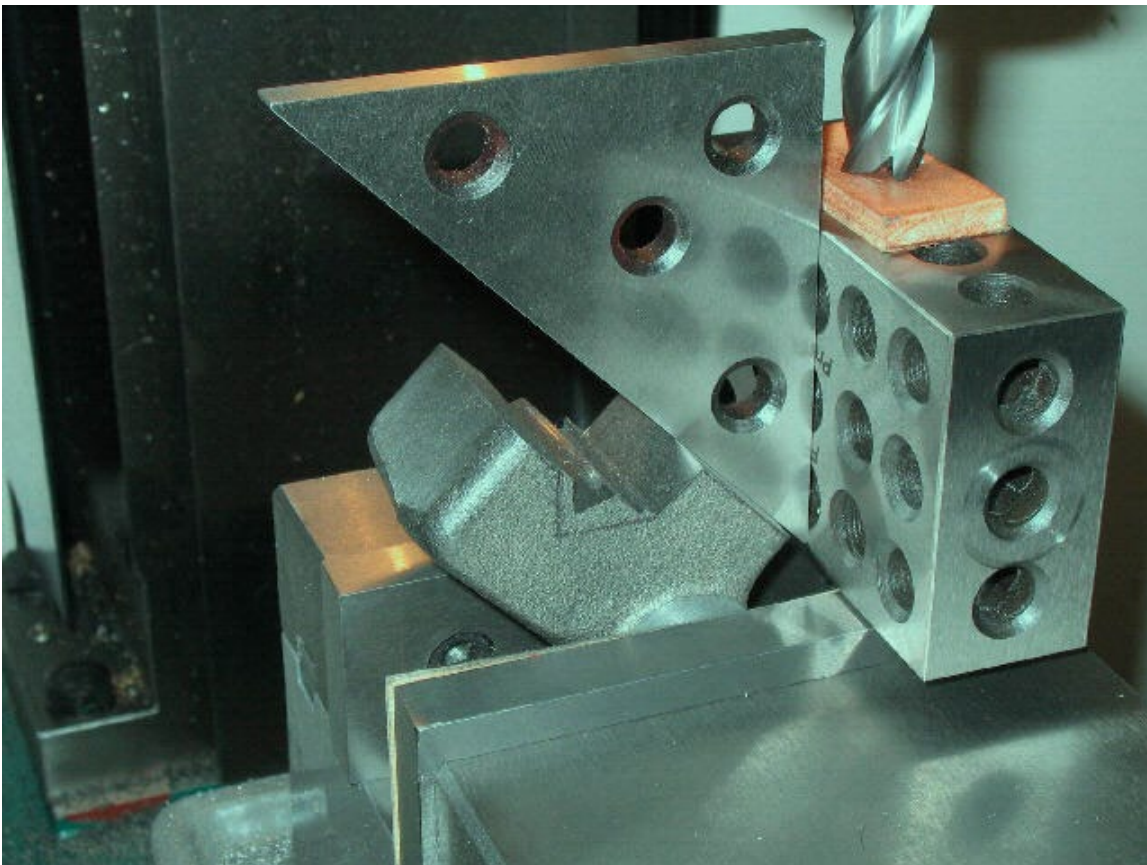
After machining a flat reference surface using the above setup, my mill arrived, and the project was shelved until I got the mill set up and running. The first step was to mill a second reference surface on the inboard end of the casting, at right angles to the machined bottom surface. These surfaces were then used to set up the casting for machining the two bosses, which provide a very handy reference for subsequent operations.

Below, I've got the bracket clamped on the bosses, having used a square to set the end surface perpendicular to the bed of the mill vise. I'm using a carbide facing mill to machine the horizontal surfaces of the bed-way contour (after band-sawing roughly to shape):





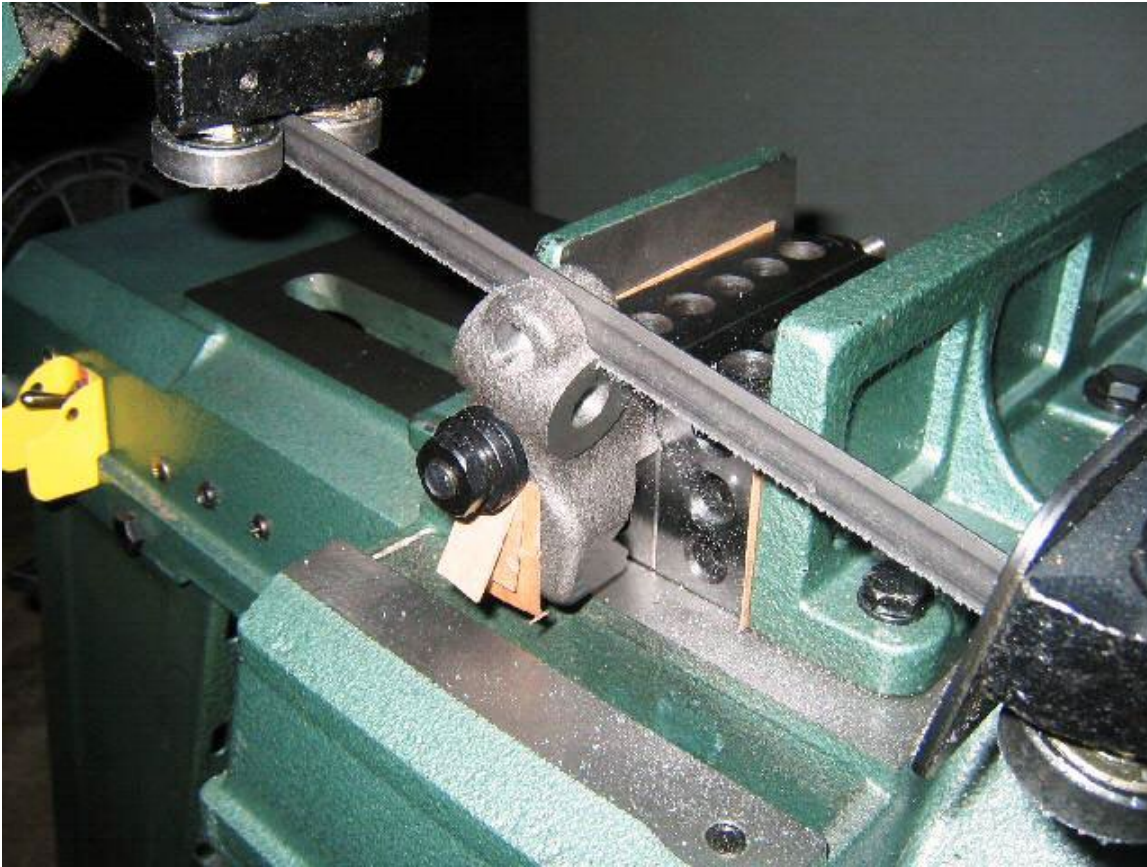
To accurately machine the V-way contour, I clamped the bracket in the vise using a 45° angle block. With the bracket clamped lightly in the vise, I placed a 1-2-3 block across the jaws, secured in place under light end mill pressure (padded with a scrap of leather), and offered the angle block up to align the bracket:



This setup worked well. After getting it machined as close to the line as I could, I removed the bracket and offered it up the lathe bed-way -- close, but not quite there. Back to the mill for a tweaking cut, and that was all it needed. The bracket slid very easily along the front V-way.

The rest of the machining operations are straightforward. I deviated slightly from the plans in moving up one size on the cap screws (1/4 & 5/16 instead of #10 & 1/4), but only because there was ample clearance, and it seemed more "proportional."

If you don't have a slitting-saw for your mill or lathe (as I don't) the indicator clamp barrel can be slit with a bandsaw. I bolted the bracket to the end of a 1-2-3 block, using the clamp bolt hole. Here's what that setup looked like:



Be careful to block up the saw or place a piece of scrap in the indicator hole, so that the saw blade doesn't mark the opposite side of the indicator hole when it cuts through.

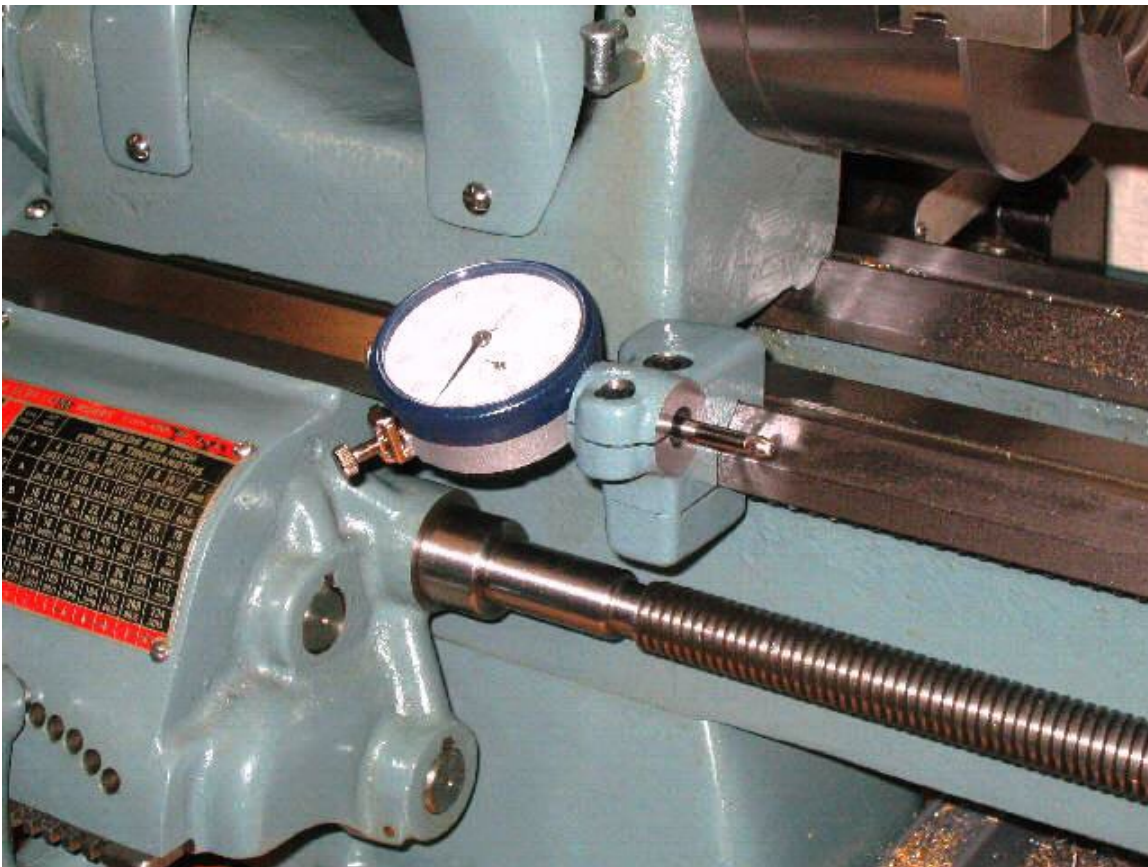
The clamp shoe is a simple part to make. You may have to machine an eighth of an inch or so off one end, to clear the carriage rack, as I did. The plans call for the 1/8" dowel pin to be pressed into the clamp shoe, but I pressed mine into the bracket. No particular reason -- just made more sense to me.

I painted my finished bracket to match the lathe. Here are some views of the finished bracket:









My next challenge: save up for a 2" travel indicator!  
Paula