ADJUSTABLE DIAL INDICATOR MOUNT

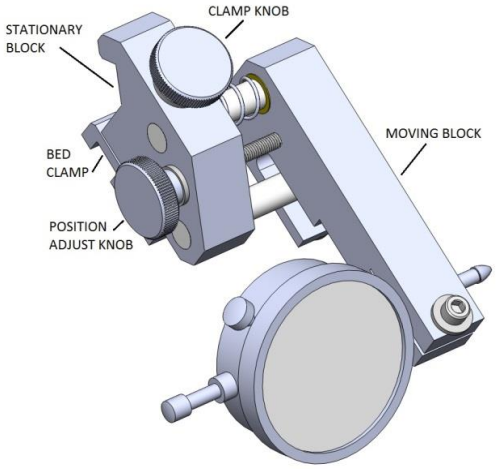
This is a dial indicator holder for my lathe, a Grizzly G4002. It clamps onto the front rail of the bed.

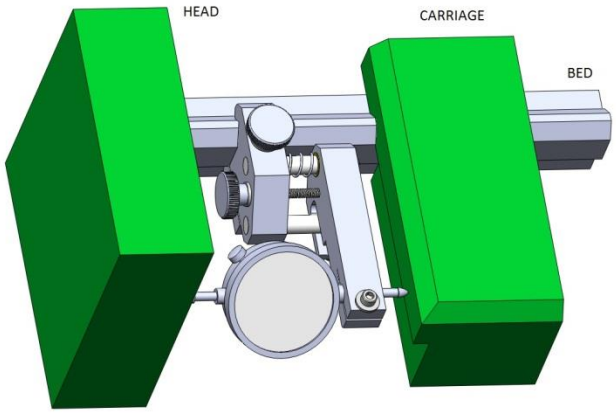
When I started using the lathe and wanted to measure the carriage travel, I used a 1" dial indicator with a magnet on the back. In order to set the zero, I'd have to slide the magnet along the rail and get it to within a few thousandths of the position I wanted. It was a problem getting the indicator to the exact position I needed.

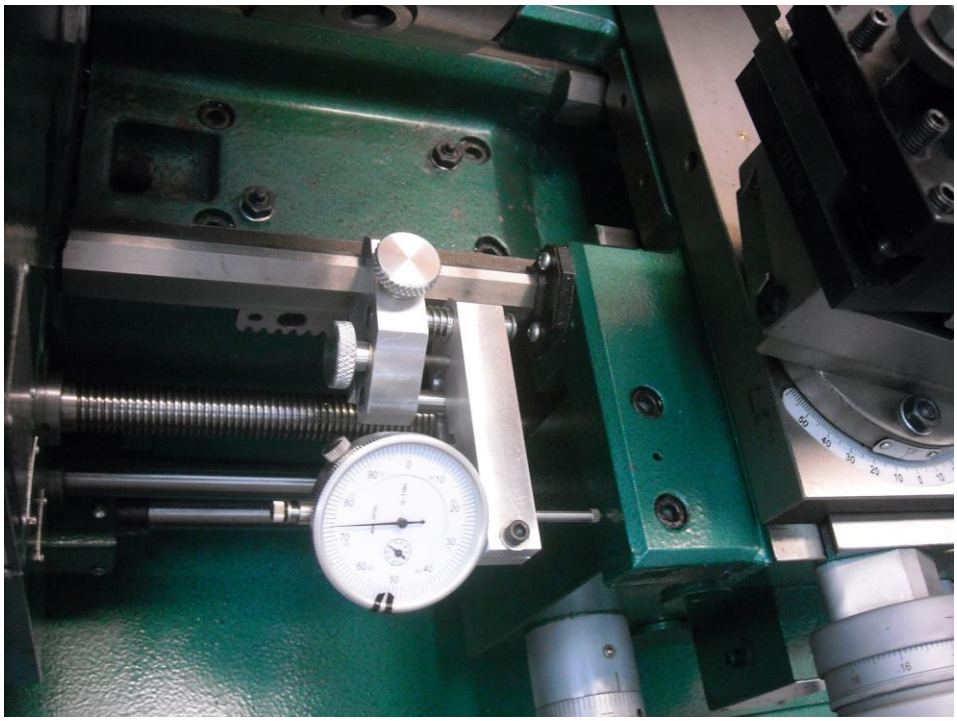
I developed this holder to be able to attach the indicator to the rail and not have to get the holder too close to the position I needed. It is clamped to the rail and then by turning the position adjust knob, the indicator moves along the carriage travel direction and I can dial in the exact number I want.

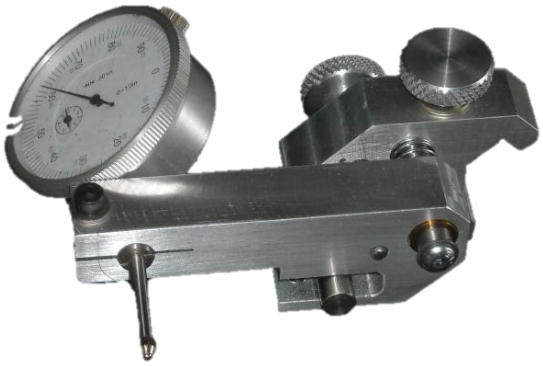
The drawings included in this write-up are for my lathe. Modifications could be made to adapt the idea to other machines.

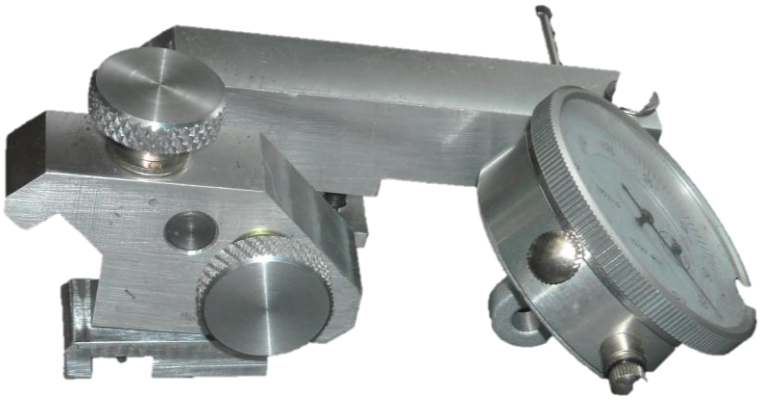
I did not make drawings for the 3/8 diameter posts pressed into the stationary block or the brass bushing pressed into the moving block. They're both straight forward and should be simple to fabricate.

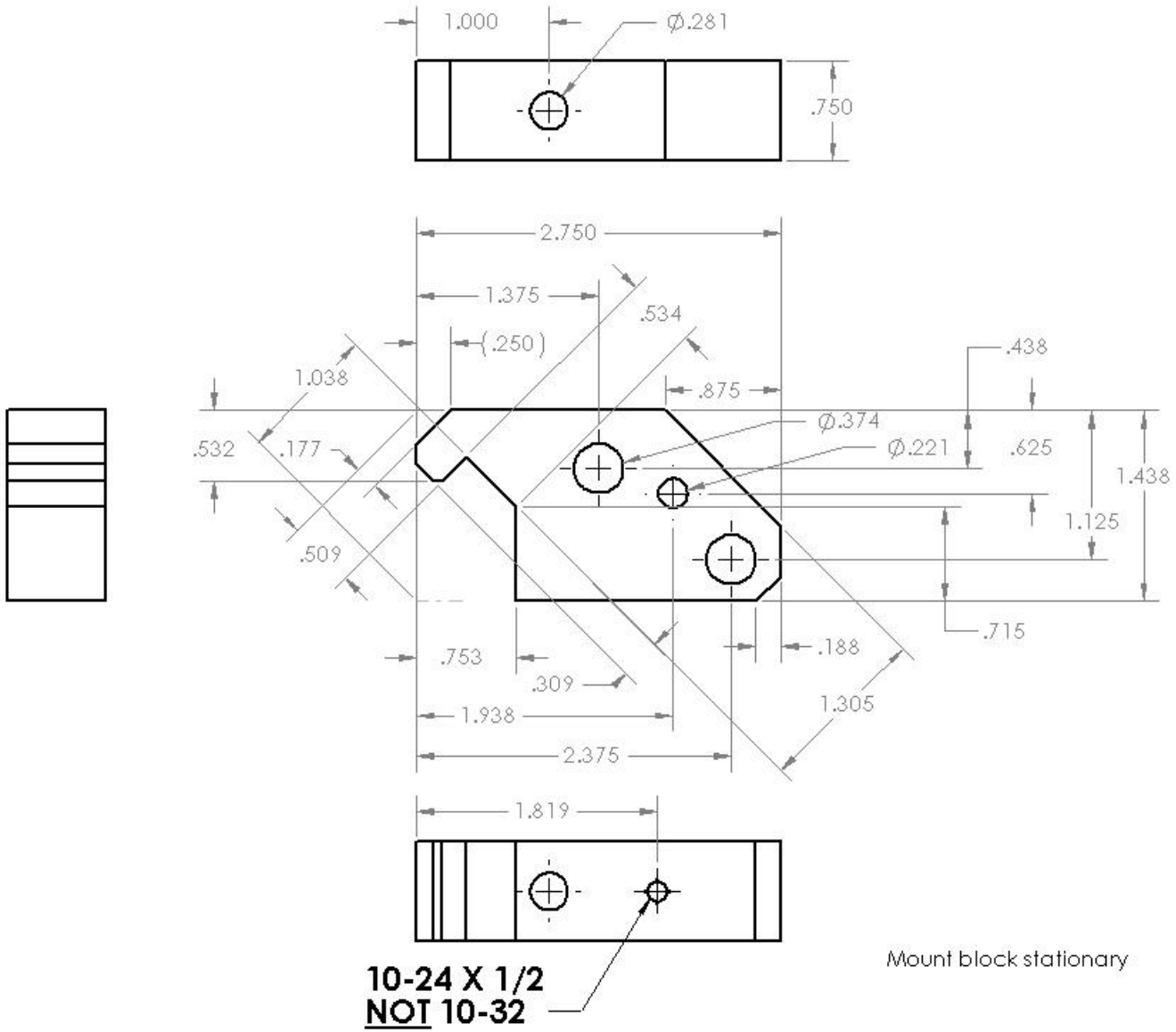











1.000
Ø.281
.750
2.750
1.375
.534
(.250)
.438
1.038
.875
Ø.374
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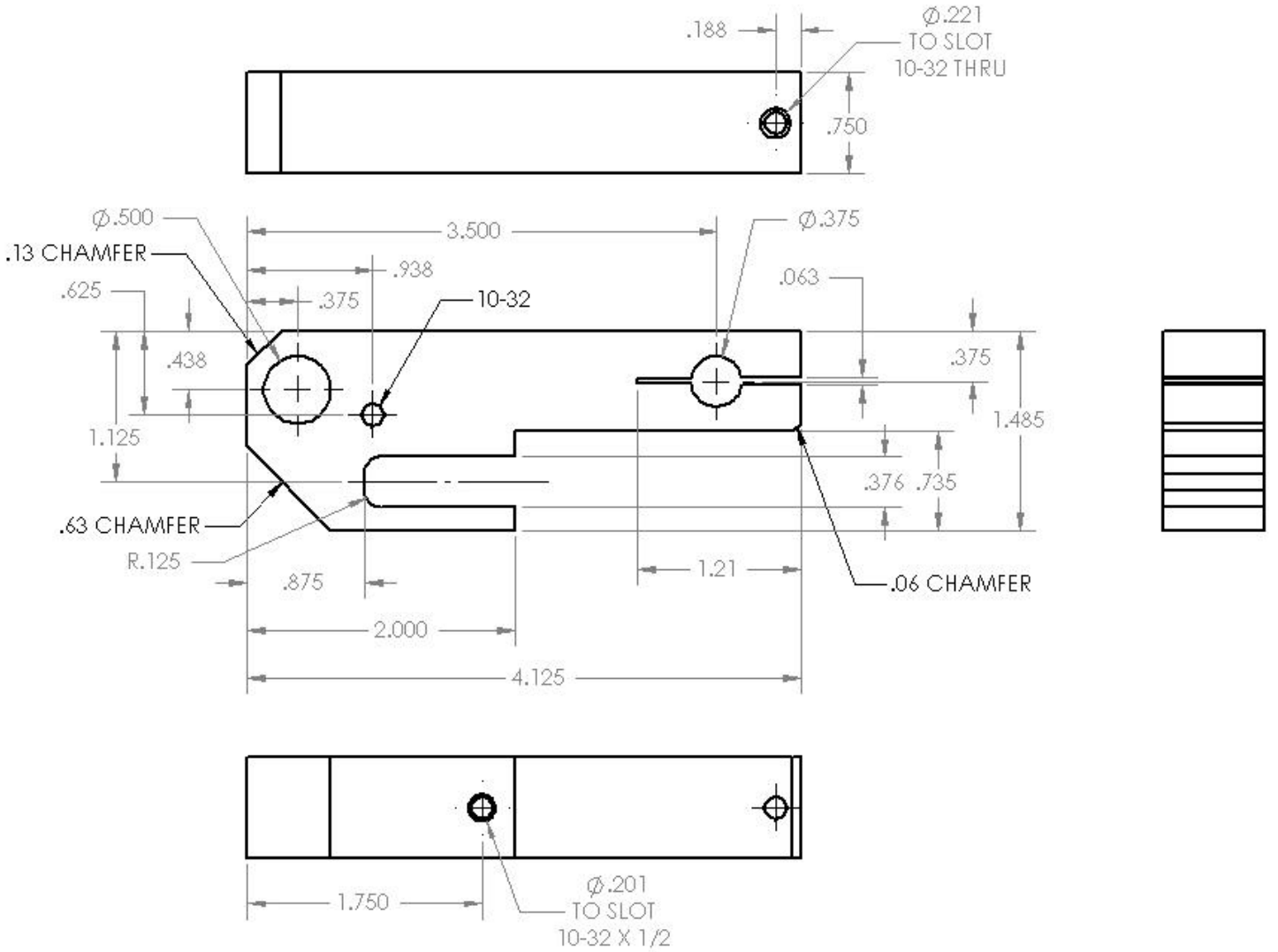
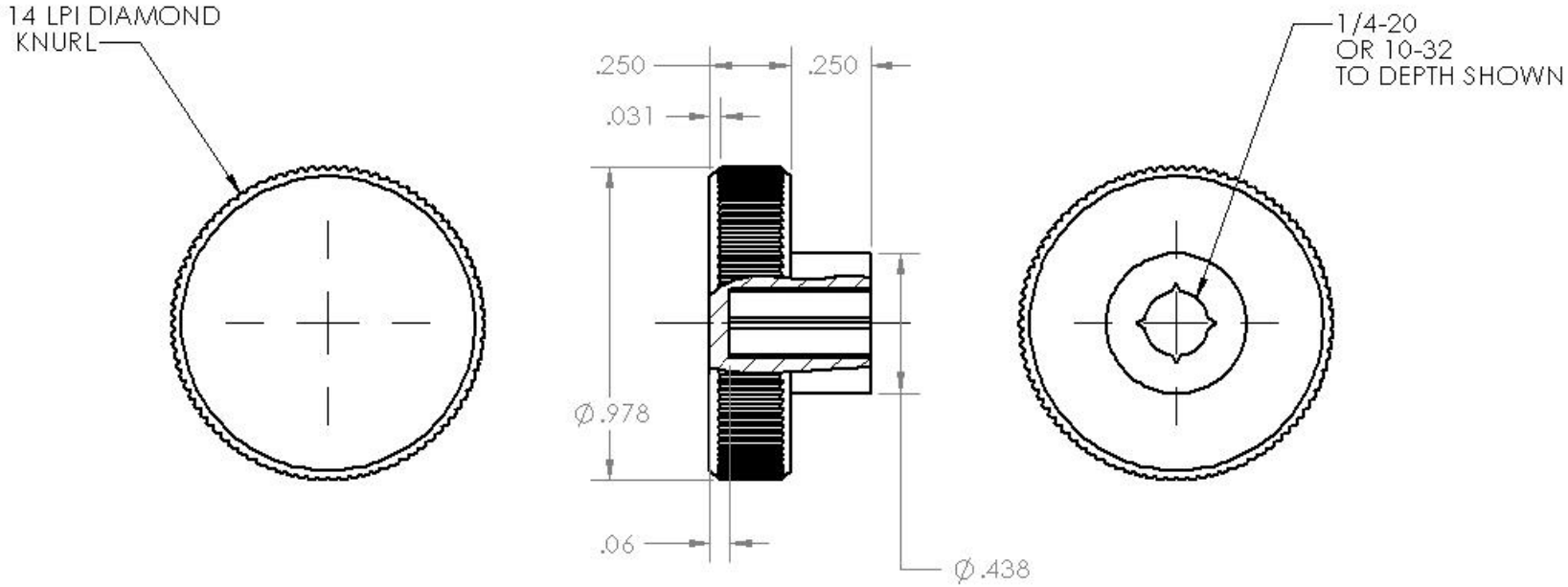
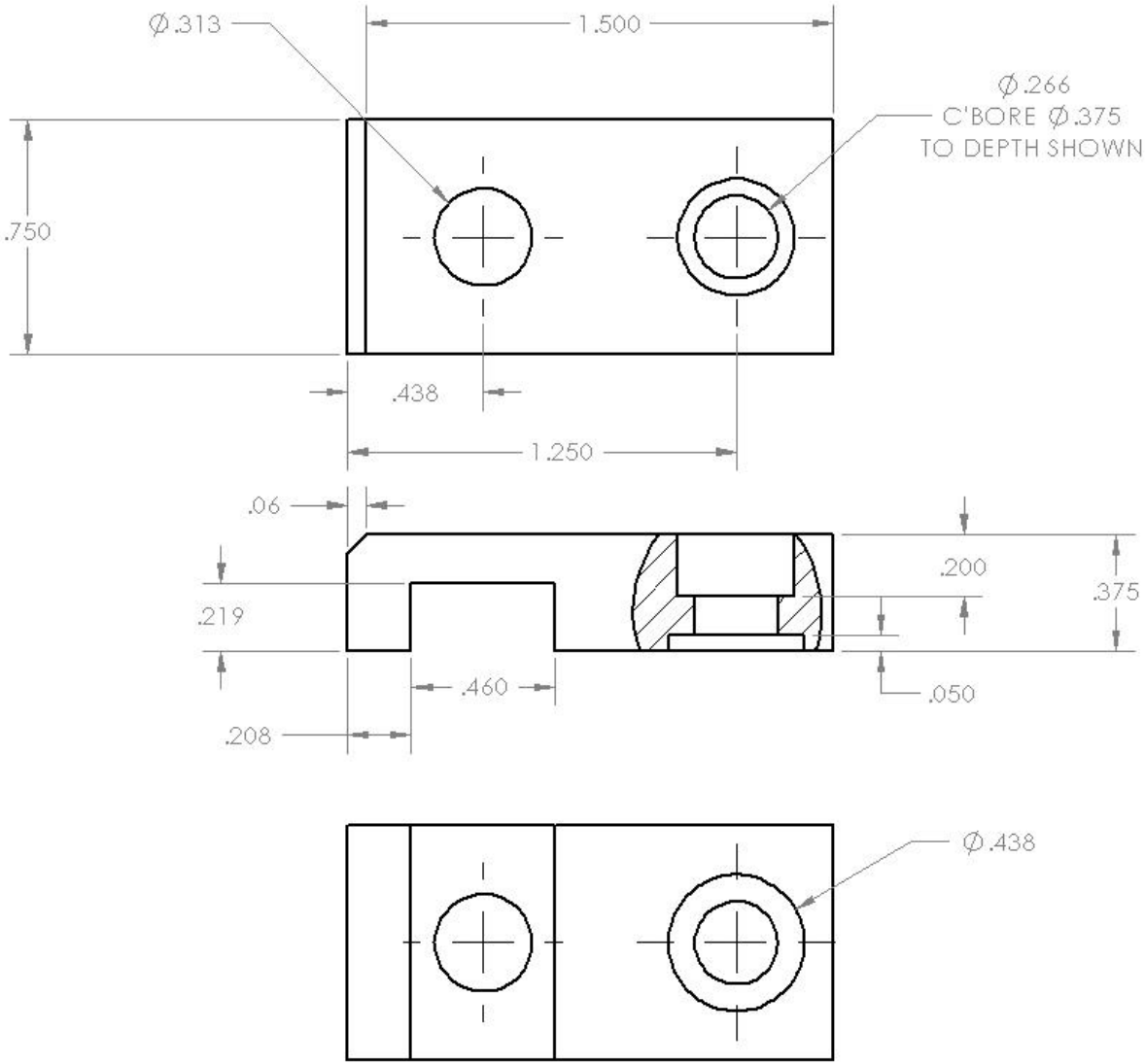
.177
.625
1.438
1.125
.509
.715
.753
.188
.309
1.305
1.938
2.375
1.819
10-24 X 1/2
NOT 10-32
Mount block stationary



Mount block moving



Thumb nut knob



Mount block clamp

The drawings were done for my use in the shop and as such have some double dimensioning. All of the above fabricated parts are aluminum. The guide posts are 3/8 ground steel and the bushing in the moving mount block is brass. I used a ¼ NPT pipe nipple turned to fit for the bushing.

I made use of some parts that I had from previous projects. The spring is Mcmaster-Carr www.mcmaster.com part number 9657K312. The shoulder screw which secures the clamp to the fixed block is 90298A535.

The moving mount block has the brass bushing pressed into it and rides on the upper guide pin which is pressed into the fixed mount block. A tapped 10-32 hole in the end of the upper pin is for a screw and washer to keep the moving block from coming off the pin. It is ideal to keep the pin to bushing clearance close but still allow for a smooth slip fit. The lower guide pin is also pressed into the fixed mount block. The slot in the moving mount block rides on that pin. There is a 10-32 screw at the outer end of the slot which provides for adjustment of the slot width. The width is adjusted to provide for a small amount of clearance around the lower pin.

The spring should be around the upper pin between the fixed and moving mount blocks. The allows the spring and 10-32 adjustment screw to bias the load on the pin to bushing clearance to make the indicator more stable.

The clamp knob is Loctited to a piece of ¼-20 threaded rod. A nut is at the bottom end of the rod and rides in the slot in the clamp. There is sufficient clearance to allow the clamp to swing down and clear the bottom of the lathe rail. The shoulder screw keeps the back end of the clamp attached while allowing the clamp to swing down to clear the bottom of the lathe rail.

The adjustment knob is Loctited to a piced of 10-32 threaded rod. Washers under the knobs prevent the aluminum knob from riding on the fixed aluminum mount.

When the indicator was against the lathe bed about .200”, I pushed on the indicator in the travel direction to see if it would return to the original reading. It did to within a couple of thousanths.