

One Way to Mount a Scale on a Mill

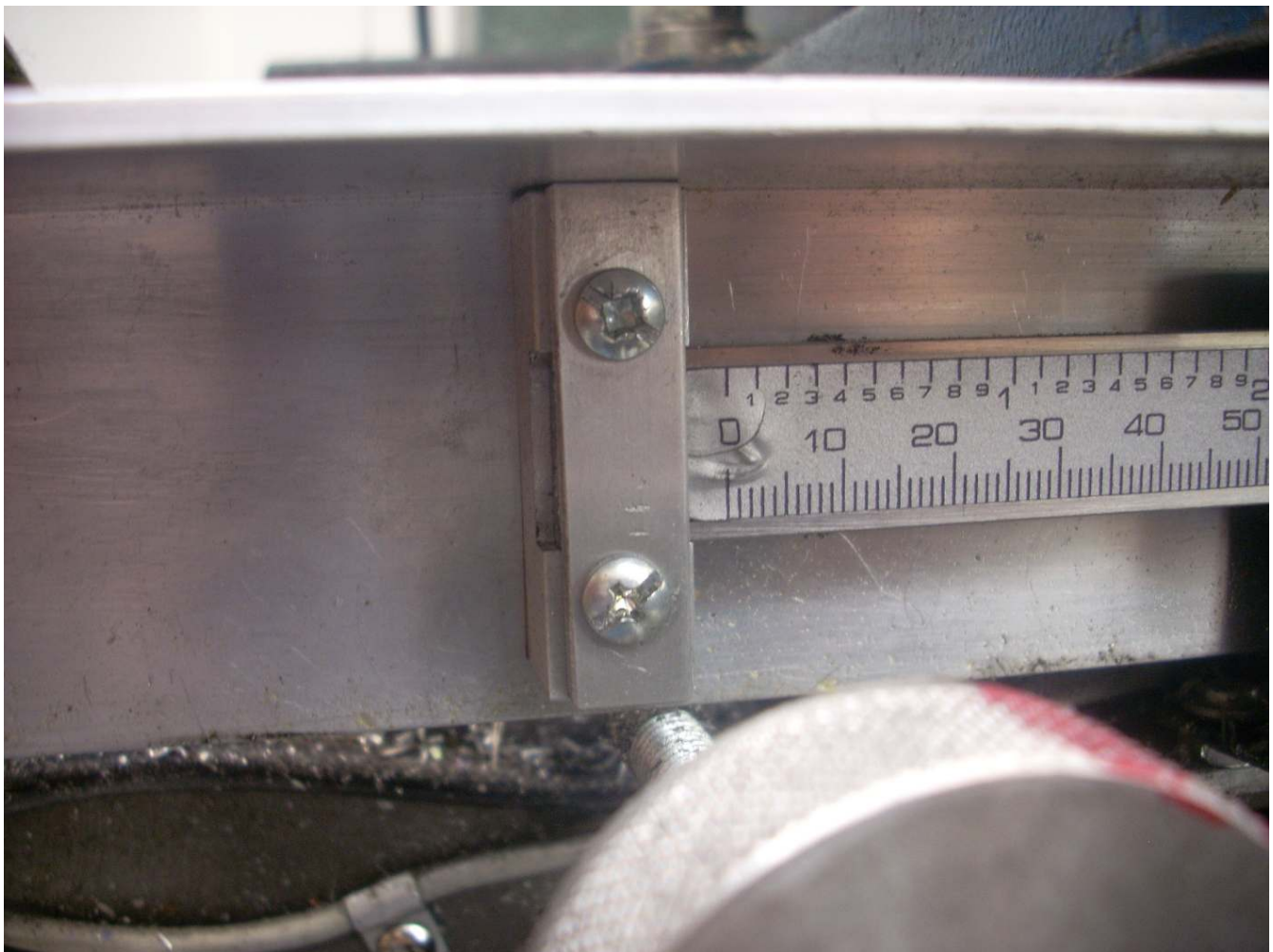
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One lesson I learned from my freshman mechanical engineering class was the dangers of an “over constrained system”. Ever seen the supports for a simple bridge over a highway? You will see that either one end is free to slide on its supports or both ends are free. In this way the bridge can expand and contract due to temperature and deflecting force without building up unnecessary stresses.

I apply this lesson each time I mount a scale. One end is securely clamped in place:



The other end is supported but free to slide in and out along the support:



I also do not want any forces acting on my slider except along its normal path.



I have a piece of thin sheet metal bent into an L. A pair of screws attach the sheet metal to the back of the slider. Another set of screw attach the sheet metal to the apron of the mill.

The sheet metal is very rigid when the force is along the axis of travel. Any forces perpendicular to this axis simply deflect the sheet metal. By forming the sheet metal into an L, I can absorb forces that would try to move the slider away from the face of the scale and also forces that would try to push the slider up or down on the scale.

This arrangement works well for me but other have reported making everything rigid without any problems. Recently I learned of an installation that did run into problems by making all linkages rigid.

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