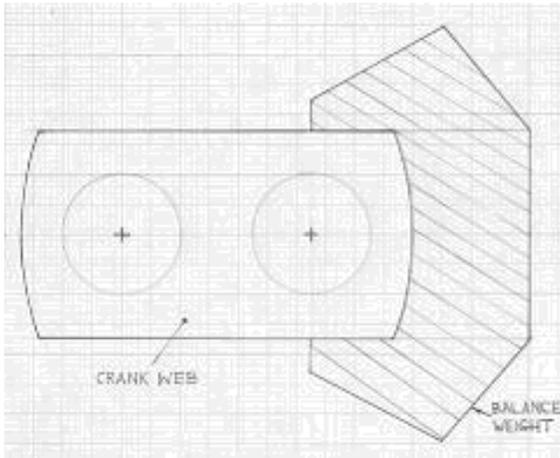


When running my 5"g Lion above about 8mph I have often experienced a fair bit of vibration which produces fears of derailment, but fortunately has never happened. I know the easy answer is to slow down but there's no fun in that and I know some people at Lionsmeet are doing well into double figures (speed limits permitting).

All through 2009 my piston rod glands had been leaking slightly and definitely getting worse, so after the New Year's Day run I decided to give my Lion a complete overhaul. Well deserved, after 14yrs running and clocking up close on a thousand miles. The stripdown showed very little wear, most things only needing slight adjustment. The only parts needing replacement were the little-end pins and new PTFE seals for the piston rod glands.

My crankshaft is to LBSC's design which is quite similar to the full size engine which did about 50mph (scale 4.4mph for 5"g). Rotating the crankaxle in the axle boxes with the valve gear and con rods removed showed a clear tendency for it to want to always stop in the same position (i.e. crank pins down). Although the outside cranks are set at 180deg to the crank pins they are much lighter and cannot balance them fully.

I decided to add some U-shaped weights to the ends of the crank webs on the opposite side to the crank pins. First, I calculated the out-of-balance masses and added about 50% of the con rod weight to it. The total was then halved to give the required mass per web. I then drew everything to a large scale on graph paper, this being very useful in developing an acceptable shape of the required size.



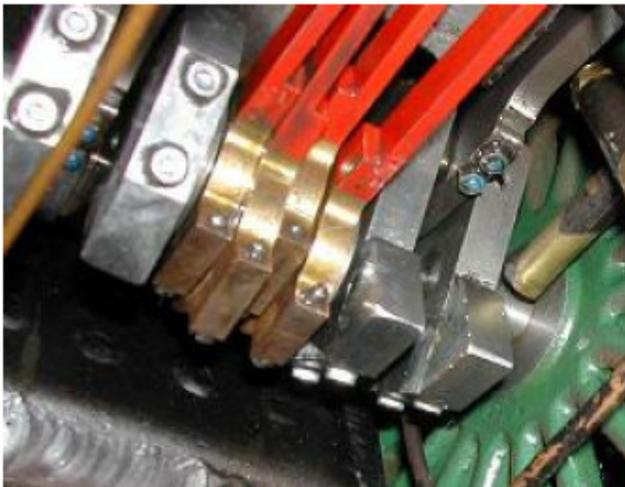
generous coating of epoxy resin hopefully keeping place. I have now steamed my Lion about 8 times definitely runs much smoother.

To avoid cutting the internal curve of the balance wts by hand I decided to fabricate them from three pieces of metal. Four pieces of mild steel were made about 0.005" wider than the webs, held together and the ends fly cut to the required radius. Side pieces were then silver soldered in position to form the U-shape.



After clamping in position on the web the balance wts were then drilled and the webs tapped M3 for two allen screws. After final shaping they were then screwed on tightly with a everything permanently in since the rebuild and it

Certainly when I get round to building the crankshaft of my 7 1/4" Lion I will be incorporating balance weights. The only disadvantage I have noticed so far is that wheel spin is much harder to detect. Previously the whole engine would shake but now you just hear the exhaust note change to a rapid purr.



This photo shows the balance weights in position & everything reassembled ready for testing.

Photographs – Jon Swindlehurst.

Thornton Hough 17th June, 'Where am I up to?'

Jon Swindlehurst had brought the part-built chassis with cylinders for his 7.1/4" gauge 'Lion' and treated everybody to an in-depth appreciation of his approach to the building of this interesting loco to his very high standards.

Now we have a photo – Jon Swindlehurst.

