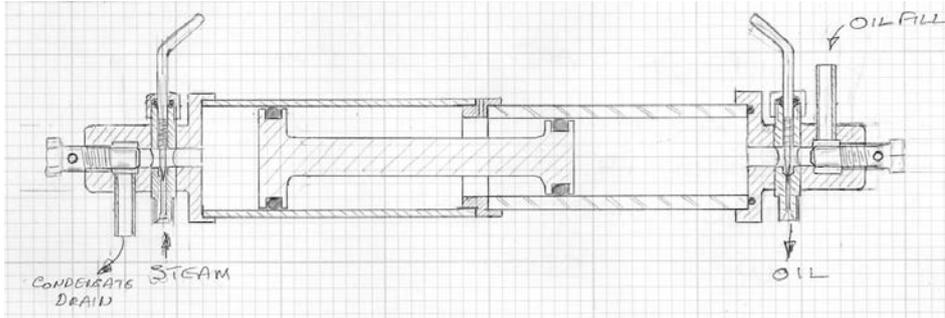


Double piston lubricator

This lubricator is probably a bit different to anything you have seen before. It is intended for the internal lubrication of steam engines. Back in 1984 I had entered a 24 hour scale sail event with a 1/12 scale steam picket boat, and needed something that would supply lubricant for hours on end and be capable of being re-filled without shutting the boiler down.



This is what I finally came up with. To give some idea of the size it was drawn on 1/8" graph paper.

It consists of two tubes with different bores mounted with their axes in line and a double ended piston running in the bores. If equal pressure is applied to each outer end, the piston will move towards the smaller end. In this case, the larger end is a piece of brass tube with a 1" bore and the smaller end is a piece of glass tube (full size water gauge tube) with a bore of 3/4".

The brass end is connected to the boiler, and the glass end to the steam line just before it enters the regulator, both through needle valves as shown in the drawing.

At either end is a shut off valve – the little hex brass bit seen at the either end of the tubes (see photo). You can also see a small vertical pipe at each end. With the needle valves shut and the shut off valves open, the lubricator



is isolated from the boiler pressure and oil is pumped in through the vertical pipe at the oil end, pushing the piston back and emptying condensate from the steam end. It was all made this way so that the oil could be replenished with the boiler at full pressure. In fact the lubricator allows several hours running before it has to be refilled.

Although needle valves are used to isolate the lubricator from the steam pressure, any sort of valve could be used – the needle valve was just easier to make and fit.

The oil feed into the steam line is through a needle valve which once set need not be altered.



Also pictured here is a much smaller version (photographed on 1/8" graph paper) which has the large bore of 1/2" and the smaller of 8mm.