

How I Reconditioned & Motorised A Gem No. 1 Treadle Platen

by H. Illingworth - ISPA News August 1961

My first year's printing was carried out on a home-made 8 x 5 hand platen constructed mainly from bed iron, bicycle chains and wood, and with it I earned my Journeyman Award, the prize for the Publicity Order Form Competition and enough cash to purchase a dozen founts of type, and a second hand Gem No. 1 Treadle Platen.

The latter appeared to be sound except for the following points:

All the spindles and shafts were worn in the various bearings, owing to neglect and lack of lubrication. Nearly all the screws and nuts showed signs of careless treatment from a previous owner who would have been better employed digging up the garden, and of course the inking rollers were useless, as were the two spare ones.

My first job was to remove all the spindles in turn and each one was replaced with a suitable length of stock mild steel bar of the correct diameter, drilled at each end to take the split pin which holds it in position. At this point I feel that I must thank the makers for constructing their machines with standard-size material, because I usually find that a commercial product is made from non-standard-size parts, and I am sure it is done for the sole purpose of preventing meddlers like me from carrying out such repairs. (Perhaps one of our "commercial type members" can verify or deny this theory of mine.)

When all the worn spindles had been replaced, the big end (which consists of a split cast iron bearing) was filed carefully across the flats until a snug fit on the crankshaft was obtained – not the correct procedure one would adopt on a car engine big end, I will admit, but then we are not dealing with cars. I next gave the whole job a coat of battleship grey paint and carefully picked out the maker's name in bright red. The platen-adjusting screws were exceptionally tight, but after the threads had been run down with taps and dies they could be turned easily with the finger tips.

Next came the compo ink rollers, which appeared to be about one inch and five-sixteenths in diameter. These were successfully recast in a length of ordinary electrical conduit tube from the original composition.

Now that the machine was ready, I set up a small test piece and decided to give it a trial run. Now I am not suggesting that it is impossible to print on a treadle machine, because there must be hundreds in use; but after trying for a couple of weeks I gave it up as a bad job, I just couldn't balance on one leg like a stork, work the treadle with the other, and at the same time use both hands for feeding the cards or paper. So I decided to motorise it. Before this could be done, some form of impression throw off mechanism had to be devised, and I found that the main platen shaft had eccentric ends but that it had been locked in position with a grub screw at one end. I removed the screw and fixed up a simple lever and linkage to turn the shaft through 45 degrees which gave ample clearance in the "out" position.

The motor is an ex-government surplus rotary convertor, which cost me ten shillings years ago and, when reconnected internally, will run as a series wound motor on A.C. mains. I don't think the voltage is very critical; this one runs very well on 250. A pulley made from a cotton bobbin is fixed on the motor spindle and this drives a second wood pulley three inches in diameter which is on one end of a small countershaft, a rubber sewing machine belt being used for the drive. On the other end of the countershaft is another cotton bobbin pulley, which drives the main flywheel of the machine through a home-made flat leather belt. To regulate the speed another leather belt is anchored to the floor at one end, looped over the main flywheel shaft, and by hanging different weights on the other end various speeds are obtained due to the friction between the belt and the shaft. The weights are timed and numbered accordingly. The speeds range from 300 to 1200 i.p.h.