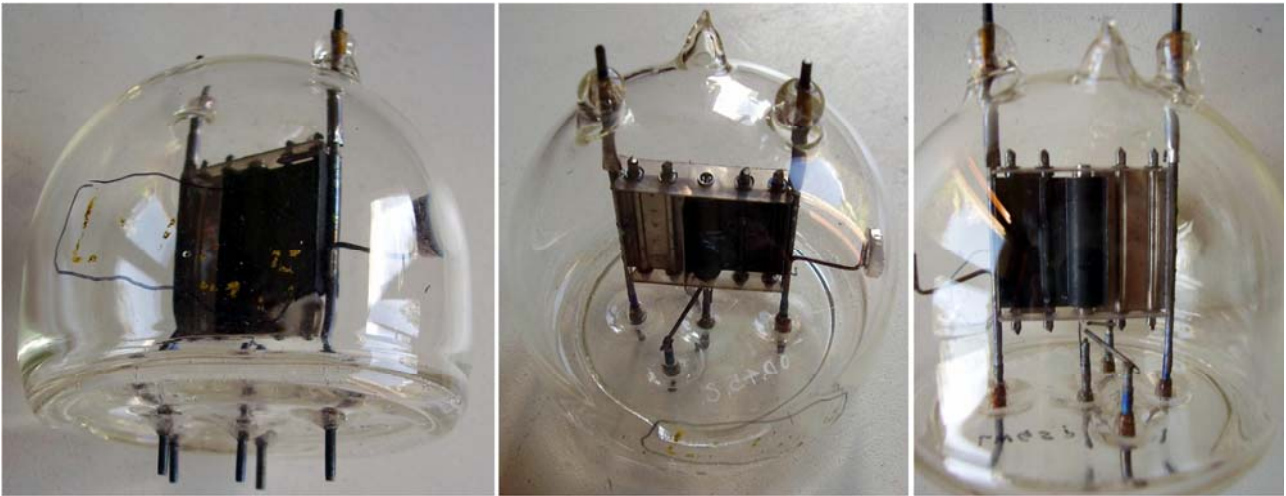


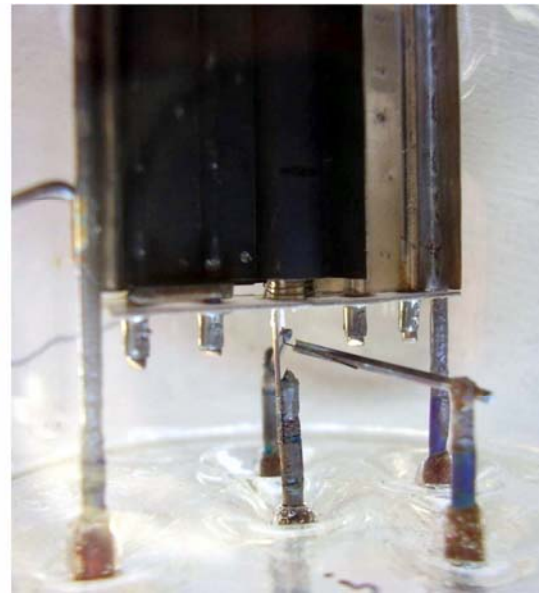
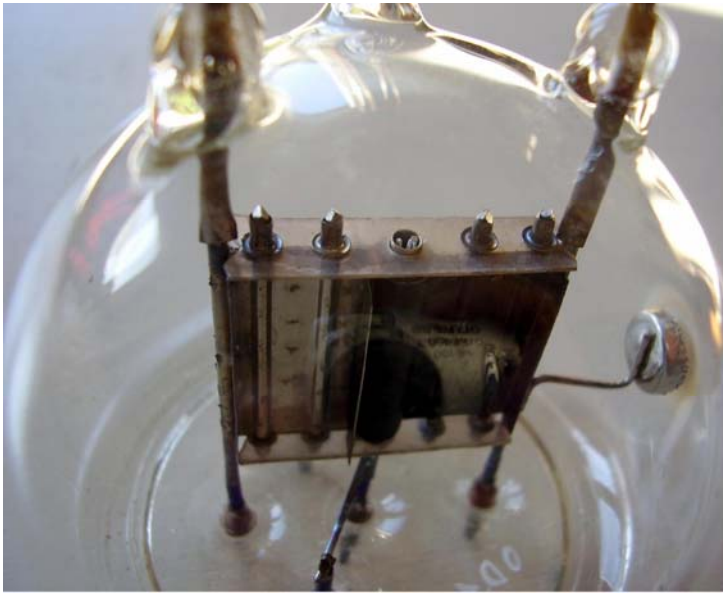
## LWGS STC - Doorknob Prototype



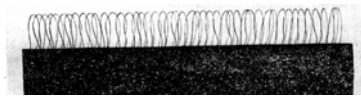
This is a unique prototype of a powerful 'doorknob' style tube probably intended to operate as UHF pulse amplifier or oscillator in radar transmitters. We know that Western Electric 'doorknob' triode were the most powerful sources of radiofrequency in the low UHF region. According to Bowen, tubes as the WE 316A were used in the development of early British AI (Air Intercept) and ASV (Air to Surface Vessels) radar sets. More powerful tubes, referred to as Samuel 2B250 were tried in 1938 but the power was too low for an acceptable detection range.

All the known doorknob tubes used filamentary tungsten or thoriated-tungsten cathode. This prototype uses an unipotential oxide-coated cathode. This kind of cathode can be used safely only in pulse operation, when the anode voltage decays before positive ions could reach enough speed to destroy the oxide layer. The plate looks quite large and thick, made by two plates of carbonized metal welded to each other. It is stiffened by two thick vertical ribs. The grid support is made of two large plates of clear metal, welded to each other and stiffened by two vertical ribs. The tungsten grid loops are welded to the grid supporting plates as we will see below in the last image. With exception for the surface treatment the plate and the grid supports are almost identical, the second penetrating in a slot left between the two anode plates. Everything indicates that this tube was designed to generate powerful pulses at frequencies around 500 MHz or even higher.

Due to the construction difficulties and the modest performance achievable in comparison to other more efficient solutions, planar triodes or micropups, the use of doorknob valves was banned in England from 1941 for new designs.



- Internal details.



- Typical construction of grid in a doorknob triode. Small tungsten loops are welded to a supporting plate