It is well known that it is possible to obtain bound states in the continuum, as proposed in the 1929 by Wigner and Von Neumann. These bound states were observed in solid state physics in a semiconductor heterostructure, however there has been no experimental evidence for these bound states in optics. In optics, a proper analogue to a resonance can be a modulated waveguides, which is known to possess eigenmodes with finite lifetime. We show, using the complex scaling formalism, that one can observe these bound states in a structure of two coupled modulated waveguides, that is, for a specific coupling strength, the symmetric (antisymmetric) state will have negligible resonance width, whereas the antisymmetric (symmetric) state will have twice the width of the original single modulated waveguide mode. Moreover, we show that by considering nonlinearity in the system as well, interesting phenomena arise such as self-creation of the bound state.