ABSTRACT. Particle–like structures are commonly observed in physical, chemical and biological systems. Depending on the system parameters and initial conditions, localized dissipative structures may stay at rest or propagate with a dynamically stabilized velocity. In this talk we aim at the traveling wave solutions for the FitzHugh–Nagumo equations. Based on a variational formulation depending on a parameter, the speed of a traveling wave can be selected out. To show the existence of a traveling wave solution with such a speed, we seek a minimizer subject to constraints. Some variational techniques are used to obtain the front and pulse solutions.