We introduce the implicit numerical approach to the existing mechanical model of the cochlea. We test four implicit methods: implicit Euler, Crank-Nicolson, backward difference formula of the second and of the third order for the linear and the nonlinear version of the model. The nonlinear model involves a function with a saturation property. Implicit methods applied to the nonlinear model lead to a system of nonlinear equations. We propose two ways how to solve this system. The first one includes transferring the nonlinearity to the right hand side of the newly formed linear system. The other one performs the linearization of the nonlinear function. We performed a detailed comparison of these versions from the point of view of the efficiency and the convergence to the reference solution. For the tolerance values of the numerical convergence that we employ, the first version shows to be more effective. The second version fails to converge at the strictly nonlinear regime. We conclude that the Crank-Nicolson method with the first version described above is the most suitable to our problem. Finally we use this method to build an arbitrarily precise connection between the mechanical and the electrical cochlear models, respecting the human physiology.