Maximum drawdown is a risk measure that plays an important role in portfolio management. In this paper, we address the question of computing the expected value of the maximum drawdown using a partial differential equation (PDE) approach. First, we derive a two-dimensional convection-diffusion pricing equation for the maximum drawdown in the Black-Scholes framework. Due to the properties of the maximum drawdown, this equation has a nonstandard boundary condition. We apply an alternating direction implicit method to solve the equation numerically. We also discuss stability and convergence of the numerical method.