We investigate interface development in a Cauchy problem for the nonlinear diffusion-convection equation

$$u_t = (u^m)_{xx} + bu_x, \quad x \in \mathbb{R}, \quad t > 0; \quad u(x, 0) = C(-x)_{+}^{\alpha}, \quad x \in \mathbb{R},$$

where $m, \alpha, C > 0, b \in \mathbb{R}$. It is proved that for the opposing direction of convection ($b > 0$) depending on $m$, $\alpha$ and $C$, the interface may initially expand or shrink. For slow diffusion ($m > 1$), the interface expands if $\alpha < 1/(m - 1)$ and shrinks if $\alpha > 1/(m - 1)$. The behavior of the interface in the case $\alpha = 1/(m - 1)$ depends on the constant $C$. There is a critical value $C_*$ such that the interface expands if $C > C_*$ and shrinks if $C < C_*$. We identify the region in the parameter space where a global self-similar solution exists, and the direction of the interface changes in time: a so called turning interface phenomenon is observed. For the direction of convection ($b < 0$), the interface always expands, and an explicit formula for the interface and local solution is derived in the whole parameter space. For fast diffusion $m < 1$, there is an infinite speed of propagation. In this case, the asymptotics of the solution at infinity agree with those of the diffusion equation. A WENO numerical scheme was applied to the problem and numerical results support our proved estimations. (Received July 21, 2014)