8. $\dfrac{\partial w}{\partial x} + \bigl[y f(w) + g(x)\bigr]\dfrac{\partial w}{\partial y} = 0.$

General solution:

$$y\exp\bigl[-x f(w)\bigr] - \int_{x_0}^{x} g(t)\exp\bigl[-t f(w)\bigr]\,dt = \Phi(w),$$

where $\Phi(w)$ is an arbitrary function, x_0 may be taken arbitrary.

Reference

Polyanin, A. D., Zaitsev, V. F., and Moussiaux, A., *Handbook of First Order Partial Differential Equations*, Taylor & Francis, London, 2002.