$$F = 2\pi u\sqrt{1+u'^2}$$

Now Euler-Lagrange:

$$\frac{\partial F}{\partial u} - \frac{\partial}{\partial x}\frac{\partial F}{\partial u'} = 0$$

$$2\pi\sqrt{1+u'^2} - \frac{\partial}{\partial x}2\pi u(1+u'^2)^{-\frac{1}{2}}2u' = 0$$

$$2\pi(1+u'^2)^{-\frac{1}{2}}(1+u'^2 - \frac{\partial}{\partial x}2uu') = 0$$

$$2\pi(1+u'^2)^{-\frac{1}{2}}(1-u'^2) = 0$$