Solving the Diophantine Equation $(a^2cX^k - 1)(b^2cY^k - 1) = (abcZ^k - 1)^2$.

Given positive integers $a, b, c, k$ with $k \geq 7$, the equation $(a^2cX^k - 1)(b^2cY^k - 1) = (abcZ^k - 1)^2$ has no integer solutions $x, y, z > 1$ with $a^2x^k \neq b^2y^k$. I will present the proof of this result using results on continued fractions and a Diophantine approximation theorem due to M.A. Bennett. (Received September 24, 2017)