Abstract: Let $G = SL(2, \mathbb{R}) \ltimes \mathbb{R}^2$ and $\Gamma = SL(2, \mathbb{Z}) \ltimes \mathbb{Z}^2$. Building on recent work of Strombergsson we prove a rate of equidistribution for the orbits of a certain 1-dimensional unipotent flow of $\Gamma \backslash G$, which projects to a closed horocycle in the unit tangent bundle to the modular surface. We use this to answer a question of Elkies and McMullen by making effective the convergence of the gap distribution of $\sqrt{n}$ mod 1.