Given a generic $K3$-surface $Y_k$ of the Apéry-Fermi pencil defined by the equations

$$X + \frac{1}{X} + Y + \frac{1}{Y} + Z + \frac{1}{Z} = k, \quad k \in \mathbb{C},$$

we use the Kneser-Nishiyama technique to determine all its non isomorphic elliptic fibrations.

These computations lead to determine those fibrations with 2-torsion sections $T$. We classify the fibrations such that the translation by $T$ gives a Shioda-Inose structure. The other fibrations correspond to a $K3$-surface identified by its transcendental lattice.

The same problem is solved for a singular member $Y_2$ of the family (i.e. with Picard number 20) showing the differences with the generic case. In conclusion, we put our results in the context of relations between 2-isogenies and isometries on the singular surfaces of the family. (Received January 29, 2019)