This thesis concerns the theory of semilattices, which are non-trivial discrete additive submonoids of $\mathbb{R}^n$, which are contained in a cone. Special emphasis is on their indecomposable elements. The most important example of semilattices is derived from real quadratic number fields, which involves the most parts of the thesis and all indecomposable elements of such semilattices are characterised in two ways. That includes using various tools from number theory, mainly continued fractions, their corresponding semiconvergents and their approximation properties, Farey pairs, but also some tools from algebraic number theory. The final part of the thesis concerns the upper bound of the norm of indecomposable elements in a semilattice, derived from the Minkowski embedding of the corresponding number field.