The Application of Reduced Design —Patent Circumvention on One Second Needle

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ABSTRACT

In this study, a famous US needle patent (one second needle or spiral eye needle) is analyzed and its patentability is circumvented and its components are reduced. Through patents component analysis of two Taiwan model patents and one US utility patent, design direction of sewing needle is observed. The evolution trend of the three patented needle designs is that the eye of a needle structure becomes more and more complex and those designs have commonality of loose channels. The eye structure of the trend prevents the thread escaping from the channels. The steps to simplify the eye structure of a needle are using functional analysis of the components in the patents, finding the root cause component, and trimming the root cause component via the trimming principles. In between, engineering contradiction is established and inventive principle 17 is implemented. The result is a trimmed eye structure of a needle. Lastly, collect additional patents to analyze their components relationship and verify the simplified eye structure indeed circumvents the patent claims of prior arts.

Keywords : Needle,patents circumvention,functional analysis,engineering contradiction

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