Innovative Alternatives for Inlay Technique in Support of Metal Work Craftsmen

Prof. Ragab Abdelrahman Amish  
Professor at Metals and Jewelry department, faculty of applied arts, Helwan university, ragabamish@yahoo.com

Prof. Gamal Elsaid Elahwal  
Professor, Metals and Jewelry Department, faculty of Applied Arts, Helwan University, Dr_gamalelahwal@yahoo.com

Shrouk Ashraf Mohamad  
MSc. Student, Metals and Jewelry Department, faculty of Applied Arts, Helwan University, des.sh@yahoo.com

Abstract:
Handicrafts are considered part of the history and civilization at any country, they cover a wide area of Egyptian heritage, in which the craftsman or manufacturer depends on his individual skills, using the simplest materials that used since ancient times, and by fastest methods, so it can be called heritage techniques. The heritage products are characterized by having an important role in stimulating and promoting tourism, as the heritage products are considered the most important products that tourists buy as a souvenir that refers to the country that they visited and thus have great economic importance. But, with the rapid development of manufacturing technologies and processes, the traditional crafts became neglected, so the technological development and the use of machines cause no interest in these old industries also workers (craftsmen) left them, till these crafts nearly disappeared, and the heritage products in our country are imported from abroad!!

The inlay technique is considered one of the most important heritage techniques in decorating the surfaces of metal products, as the products implemented with this method are distinguished by the beauty and sustainability of their appearance achieved in contrasting color and retaining of its elegance due to the selection of high-quality materials such as gold and silver, it consists in engraving the design on the surface of the metal with undercut, then filling the excavated parts with another metal, more valuable metal, such as gold, silver or copper. More recently, designers and craftsmen have turned to the so-called (revival of the national heritage), so it is important to search for alternatives and new solutions for inlay technique, as it has a great role in reviving handicrafts and heritage products because of their great economic importance, also to encourage craftsmen to return to work and develop this technique, by finding new methods for removing and additive processes that are included in the Inlay technique, in order to be characterized by the ease of implementation.

Statement of the problem: The problem of this research is how to find new alternatives for Inlay techniques, and how to apply these alternatives on metal products, to make it easier for the craftsman to implement it. Objective: the research aims to study the productive assets of Inlay technique and how to find various technical alternatives. Significance: The importance of research is summarized in reviving the heritage techniques and the distinctive character of handicrafts in the metal product, and finding innovative alternatives for Inlay technique to make the implementation easier. Methodology: The study follows the descriptive and analytical approach. Results: 1. the possibility of making use of advanced manufacturing processes and applying them in the implementation of the inlay technique. 2. the traditional engraving methods can be replaced by electrical engraving pens for engraving and making undercut or by chemical removing layers(zincograph) to facilitate the manufacturer. 3. It is possible to fill in more than one type of metal sheet or wire in a whole product, but when using different colors of gold or different metals in the inlay start with hardest metal, which mean the hardest material is inlayed first, as silver first then do the gold24k, unlike applying two types of metallic paste, where gold 24k is added first and then silver because the firing degree of gold is higher up to 1000°C as for silver, it reaches 850°C.

Keywords: Handcrafts, Heritage techniques, Inlay, Advanced manufacturing processes, Metal Clay.