

The Application of Traditional Lacquer Carving Technology in Modern Product Design

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Abstract

This research aims 1) to study the artistic and technological characteristics of traditional lacquer carving techniques during the Yuan, Ming, and Qing dynasties in China, and seek suitable product design types, 2) to develop practical works in the form of experimental design, with the aim of representing the characteristics and aesthetics of traditional lacquerware while also finding solutions to the technical factors in the development and design of contemporary Chinese lacquerware products. For example, the application of carved lacquer technology in modern product design and 3) to analyse the artistic and technological characteristics of traditional Chinese carved lacquerware, this study aims to apply it to jewelry design, stationery design, and furniture design, and promote the art of carved lacquerware in the form of modern product design representing the Yuan, Ming, and Qing dynasties by bringing the traditional beauty concept of ancient designers together with the design of modern lacquerware products using a qualitative research method. Proceed by studying the information in the document. Field surveys with participant observation, non-participant observation, and expert interviews lead to design data analysis with descriptive analysis. The results showed that the technical factor in modernizing contemporary lacquerware shapes is the development of irreplaceable raw materials, such as raw lacquerware. This makes the lacquer-coating process more complicated and time-consuming. This is because the lacquer coating process needs to be improved and machinery cannot be substituted. This is a problem encountered in the development of lacquerware. Making lacquerware is product design. Lacquer work on lacquerware in the past emphasized art forms like handicrafts. Because in the production of lacquerware, the most important thing is to show identity. However, as a product, its function is very important. By separating functions from actual use, we will lose the essence of product design. Therefore, the emphasis on practicality and functionality in

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creating lacquerware is a need and trend in contemporary lacquerware development. In the application of technology for carving lacquerware and for furniture design, not only will we restore the charm of lacquerware carving, continuing the culture of lacquer carving, but we can also combine modern design concepts. To provide new materials and concepts for cutting-edge product design. To reflect the heritage value of lacquerware craftsmanship in modern product design, including the spiritual heritage value and the use of the inheritance value of lacquer carvings.

Keywords: Traditional Chinese Lacquerware Craft, Carving Lacquer Craft, Modern Product Design, Technology in Product Design, Chinese contemporary lacquerware

บทคัดย่อ

งานวิจัยนี้มีวัตถุประสงค์ 1) เพื่อศึกษาคุณลักษณะทางศิลปะและเทคโนโลยีของเทคนิคการแกะสลักเครื่องเงินแบบดั้งเดิมในสมัยราชวงศ์หยวน หมิง และชิงในประเทศจีน และแสวงหาประเภทการออกแบบผลิตภัณฑ์ที่เหมาะสม 2) เพื่อพัฒนาผลงานเชิงปฏิบัติในรูปแบบของการออกแบบเชิงทดลอง โดยมีจุดมุ่งหมายในการนำเสนอลักษณะและความสวยงามของเครื่องเงินแบบดั้งเดิม หาแนวทางแก้ไขปัจจัยทางเทคนิคในการพัฒนาและออกแบบผลิตภัณฑ์เครื่องเงินร่วมสมัย ตัวอย่างเช่น การประยุกต์ใช้เทคโนโลยีเครื่องเงินแกะสลักในการออกแบบผลิตภัณฑ์สมัยใหม่ และ 3) เพื่อวิเคราะห์ลักษณะทางศิลปะและเทคโนโลยีของเครื่องเงินแกะสลักแบบดั้งเดิมของจีน เพื่อนำไปใช้กับการออกแบบเครื่องประดับการออกแบบเครื่องเขียนและการออกแบบเฟอร์นิเจอร์ และส่งเสริมศิลปะ เครื่องเงินแกะสลักรูปแบบการออกแบบผลิตภัณฑ์ที่ทันสมัยที่สื่อถึงความเป็นตัวตนของราชวงศ์หยวน หมิง และชิง โดยนำแนวคิดความงามแบบดั้งเดิมของนักออกแบบในสมัยโบราณมาผสมผสานกับการออกแบบผลิตภัณฑ์เครื่องเงินสมัยใหม่ ใช้วิธีการวิจัยเชิงคุณภาพ เริ่มด้วยการศึกษาข้อมูลเอกสาร การสำรวจภาคสนามด้วยการสังเกตแบบมีส่วนร่วมและการสังเกตแบบไม่มีส่วนร่วม และการสัมภาษณ์ผู้เชี่ยวชาญเพื่อนำไปสู่การวิเคราะห์ข้อมูลการออกแบบด้วยการวิเคราะห์เชิงพรรณนา ผลการวิจัยพบว่า ปัจจัยทางเทคนิคในการปรับปรุงรูปทรงเครื่องเงินร่วมสมัยให้ทันสมัยคือ การพัฒนาวัตถุดิบที่ไม่สามารถหาทดแทนได้ เช่น เครื่องเงินยางรักดิบ ที่มีกระบวนการเคลือบที่มีความซับซ้อนและใช้เวลานาน จำเป็นต้องปรับปรุงกระบวนการเคลือบซึ่งไม่สามารถทดแทนได้ด้วยการใช้เครื่องจักรซึ่งเป็นปัญหาที่พบในการพัฒนาเครื่องเงิน การทำเครื่องเงินก็คือการออกแบบผลิตภัณฑ์ประเภทหนึ่ง โดยงานเคลือบเครื่องเงินในอดีตมุ่งเน้นการสร้างรูปแบบเชิงศิลปะ ดังเช่นงานหัตถกรรมประเภทต่าง ๆ เพราะในการผลิตเครื่องเงินสิ่งสำคัญที่สุดคือการแสดงเอกลักษณ์ของตัวผลิตภัณฑ์

อย่างไรก็ตาม หน้าที่ด้านการใช้งานของตัวผลิตภัณฑ์ก็มีความสำคัญมาก การแยกหน้าที่ใช้สอยออกจากการใช้งานจริงจะทำให้สูญเสียแก่นแท้ของการออกแบบผลิตภัณฑ์ไป ดังนั้นการมุ่งเน้นประโยชน์ใช้สอยเพื่อการใช้งานจริง การสร้างสรรค์งานเครื่องเงินจึงเป็นความต้องการและนำสู่แนวโน้มในการพัฒนาเครื่องเงินร่วมสมัย ในการประยุกต์เทคโนโลยีการแกะสลักเครื่องเงินสู่การออกแบบเครื่องใช้ไม่เพียงแต่จะเป็นการฟื้นคืนเสน่ห์ของการแกะสลักเครื่องเงิน การสืบสานวัฒนธรรมการแกะสลักเครื่องเงิน แต่ยังสามารผสมผสานแนวคิดการออกแบบที่ทันสมัยได้อีกด้วย และเพื่อการจัดหาวัสดุและแนวคิดใหม่สำหรับการออกแบบ

ผลิตภัณฑ์ที่ทันสมัย ที่สะท้อนถึงคุณค่าทางมรดกของงานฝีมือเครื่องเงินในการออกแบบผลิตภัณฑ์สมัยใหม่ รวมถึงคุณค่าทางจิตวิญญาณ และการใช้คุณค่าทางมรดกของการแกะสลักเครื่องเงิน

คำสำคัญ: งานเครื่องเงินแบบจีนโบราณ, งานลงรักแกะสลัก, การออกแบบผลิตภัณฑ์สมัยใหม่, เทคโนโลยีในการออกแบบผลิตภัณฑ์, เครื่องเงินแบบจีนร่วมสมัย

Introduction

1.Introduction to Traditional Chinese Lacquerware

Chinese traditional lacquer art is a traditional handicraft, which, together with ceramics and textiles, is known as the three major traditional handicrafts in China (Lu, 2017), Lacquerware, which first emerged in the Neolithic period, initially took on the form of biomimetic design, serving purely functional purposes. Archaeologists have uncovered notable lacquerware artifacts such as the Zhu lacquer bowl (Figure 1). During this period, lacquerware imitated the shapes of animals and plants, catering solely to practical needs. The development and structure of bronze ware during the Pre-Qin era influenced the creation and design of lacquerware, resulting in its colors gradually becoming more solemn and vibrant. In the Qin and Han dynasties, lacquerware began to receive greater attention in terms of craftsmanship and design, expanding beyond its original practicality. During the Eastern Han Dynasty, the renowned Yichun bodiless lacquerware emerged, featuring the famous lacquer ear cup, a wine vessel discovered in Mawangdui. (Figure 2). In the Sui and Tang dynasties, lacquerware underwent aesthetic transformations and started incorporating materials such as mother-of-pearl, gold, and silver inlays, exhibiting a unique and magnificent appearance. The Ming and Qing dynasties witnessed the maturation of lacquerware craftsmanship, characterized by simpler and more innovative shapes compared to earlier periods. Among the lacquerware of the Ming dynasty, carved lacquerware achieved the pinnacle of accomplishment.

2. The Application and Development of Carved Lacquerware

Carved lacquer originated from lacquerware, which is an artwork made from large lacquer and coated layer by layer on the substrate to an appropriate thickness before being processed and carved (Lu, 2020). Carving lacquer is known as the art of time, which requires more than a hundred manual processes such as drawing, painting, carving, and polishing. Each process relies on the sedimentation of time. The completeness of a work embodies the wisdom of countless craftsmen. It takes at least ten years for a craftsman to proficiently master various lacquer carving techniques and reach the realm of spiritual artifacts. (Lu, 2022).

In Chinese history, the artistic achievements of carved lacquerware during the Yuan, Ming, and Qing dynasties were the highest, and the technology was relatively mature. The Yuan Dynasty carved lacquer, especially the carved red lacquer, has always enjoyed a high

reputation. And because signed works have been passed down, among lacquerware craftsmen, Zhang Cheng and Yang Mao are very famous (Zhou, 2022). Ming's carved lacquer still maintains the style of Yuan carved lacquer, with a thick paint layer, strong layering of patterns, and no exposed knife marks (Zhang, 2018). The lacquer carving techniques during the Qianlong period of the Qing Dynasty, which were the culmination of previous generations, integrated the style and characteristics of the Ming Dynasty with innovation and development. They were determined to forge ahead and reached the pinnacle of artistic excellence, showcasing a new look of sharp, layered, and dense carving techniques (Sun, 2022).

The art of carving lacquer ware was once widely distributed in various developed cities in China, but under the influence of globalization and industrialization, the number of practitioners has sharply decreased, and the art of carving lacquer ware is in danger of disappearing. In 2006, carved lacquerware was included in the National List of Intangible Cultural Heritage Protection in China. How to protect and inherit the carving lacquerware skills has become an important issue in the protection of intangible cultural heritage. Craftsmanship is the accumulation of knowledge in material production by humans. As a traditional handicraft technique, the inheritance and practicality of carving lacquerware are the basic characteristics (Song, 2010). Therefore, researchers explore the inheritance and innovation of carving lacquerware from the application of traditional lacquerware carving techniques in product design.



Figure 1 Zhu Lacquer Bowl, Neolithic,
Wooden bowl vermilionlacquer,1
0.6×9.2×5.7cm

Note. From Collection of Zhejiang Provincial
Museum, Unearthed in 1977



Figure 2 Dragon Pattern Lacquer Ear Cup,
western han dynasty, red paint. Black paint.
Linen,17.8×11×4.5cm

Note. From Collection of Hunan Provincial
Museum, Unearthed in 1986

Research Objective

1. To study the artistic and technological characteristics of traditional lacquer carving techniques during the Yuan, Ming, and Qing dynasties in China, and seek suitable product design types.

2. To develop practical works in the form of experimental design, with the aim of representing the characteristics and aesthetics of traditional lacquerware while also finding solutions to the technical factors in the development and design of contemporary Chinese lacquerware products. For example, the application of carved lacquer technology in modern product design.

3. To analyse the artistic and technological characteristics of traditional Chinese carved lacquerware, this study aims to apply it to jewelry design, stationery design, and furniture design, and promote the art of carved lacquerware in the form of modern product design.

Research Methodology

The researchers mainly used qualitative research methods in this research. The steps are as follows:

1. Literature research method

Select literature based on research objectives, based on the research objectives, information on the historical development of traditional lacquerware, artistic characteristics and techniques of carved lacquerware, as well as the current status of modern product design and application, was obtained from literature materials such as books, journals, and papers.

2. Observation method

In the study, excellent cases of traditional lacquerware products were observed in museums such as Hubei Museum, Zhejiang Museum, Nanjing Museum, National Museum, and the Jingzhou Lacquer Art Research Institute of Tsinghua University, and information on the artistic and technical characteristics of traditional lacquerware was obtained, which coincided with modern product design.

3. Interview method

Using a structured interview outline, conduct in-depth interviews with two lacquer design and production artists. Obtained information on the inheritance of traditional lacquer techniques and material updates, modern design concepts, aesthetic awareness, and issues related to the development of contemporary lacquer design in lacquer product design.

Research Results

Based on historical resources study. the art of carved lacquer originated during the Wei, Jin, Northern, and Southern dynasties and has continued to be practiced throughout

subsequent dynasties like the Tang, Song, Yuan, Ming, and Qing. Huang Cheng recorded in "xi u Shi Lu": "The products made in the Song and Yuan Dynasties have clear carving marks, smooth edges, slender and delicate (Huang & Yang, 1991). The artistry of lacquer carving during the Yuan Dynasty achieved a remarkable level of excellence, building upon the foundations established during the Song Dynasty. The extant lacquer carving masterpieces created by Zhang Cheng and Yang Mao serve as prime examples of the pinnacle of lacquer carving skill during the Yuan Dynasty. The continuity of lacquer carving style from the Yuan Dynasty to the Yongle and Xuande periods of the Ming Dynasty can be attributed to the influence of Zhang Degang, who was the son of Zhang Cheng, a prominent figure in lacquer carving during the Yuan Dynasty. Zhang Degang played a significant role in overseeing lacquer manufacturing at the Orchard Factory, thereby ensuring the preservation of the Yuan Dynasty's lacquer carving style during the aforementioned Ming Dynasty periods (Li & Sun, 2020). The lacquer carving techniques employed throughout the Qianlong era of the Qing Dynasty represent exceptional works of art from the preceding generation. These techniques skillfully combine the stylistic attributes of the Ming Dynasty with elements of invention and advancement.

1. A Comparative Examination of Research Findings on Carved Lacquer Artefacts during the Yuan, Ming, and Qing Dynasties.

During the Yuan and Ming dynasties, the predominant forms of ceramic vessels included plates and boxes, complemented by a variety of accompanying objects such as bowl lids, cup holders, sculptures, miniature bottles, and step stools. There were few alterations observed in the morphology of the utensils. The carved lacquer works produced during the Qing Dynasty exhibit a comprehensive representation of various facets of courtly existence. When considering decorative patterns, they can be classified into four distinct categories: floral and avian motifs, depictions of landscapes and characters, auspicious symbols, and religious themes. The carved lacquer objects possess distinctive cultural implications and incorporate unusual materials, akin to the blue and white porcelain. To yet, the chemical synthesis of analogous hues has not been achieved. The hue of carved lacquer in its red variant is commonly acknowledged as the epitome of "authentic red" and holds significant international recognition as the quintessential "Chinese colour". According to (Yan, 2013), The decorative motifs of Yuan Dynasty carved lacquerware exhibit a stylistic continuity with the lacquerware of the preceding Song Dynasty. The primary ornamental patterns consist of floral elements, avian representations, and depictions of landscapes. (Chen, 2011). Zhang Cheng's artistic oeuvre during the Yuan Dynasty predominantly centred around floral subjects. The disc depicted in Figure 6 showcases a vibrant *Gardenia jasminoides* pattern. The ground of the disc is adorned with yellow paint, while the application of thick paint using around knife technique contributes to the overall texture and appearance. The artist skillfully sculpted a large and vibrant *Gardenia jasminoides* flower on the disc, accurately capturing its intricate

details, including four developing buds positioned in between. The branches and leaves exhibited unrestricted growth, enveloping the entirety of the vessel. The reverse side of the disc exhibited intricate vanilla motifs, characterized by deep and curvilinear incisions.

Table 1 Yuan Dynasty carved lacquer.

Carving lacquerware pictures	Technical Features	Decorative patterns
 a. Carved red gardenia flower pattern circular, Yuan Dynasty, Red paint, Diameter: 32.2 cm	After applying thick red paint, carve on it. Use a rich and rounded carving technique. Represented the highest level of lacquer carving technology at that time.	Using realistic techniques, carve double petal gardenia flowers on a plate, including four budding flower buds with freely curling branches and leaves. Carve vanilla patterns on the back of the plate.
 b. Carved red camellia circular box, Yuan Dynasty, Red paint, Diameter: 8.2x19.8 cm	Brushing paint is thick, with delicate quality, pure and beautiful color, demonstrating superb carving skills.	The disk is carved with camellias, and the outer edge of the plate is carved with various flowers
 c. Carved red peony pattern small box, Yuan Dynasty, Red paint, Diameter: 3.8x10.5cm	The lid and box are both carved on both sides, and the paint used in the artwork is not thick. The carving technique is smooth and delicate. The edges of the pattern are polished smoothly without revealing any carving marks.	Carving peony flowers and leaves, embellishing flower buds, with lush branches and leaves. Peony is the richest and noblest of flowers. The peony blooms, symbolizing prosperity and prosperity.

Note. a., b. Collection of Palace Museum, Unearthed in 1983

c. Collection of Palace Museum, Unearthed in 1989

Based on the information in Table 1, the researchers analyzed the artistic features characteristics of Yuan Dynasty carved lacquerware as follows:

The main decorative patterns are flowers, birds, and landscape figures. The knife technique is round and thick, with smooth lines and easy conversion. During the Yongle era of the Ming Dynasty, a predominant theme in carved lacquer works was the depiction of blooming flowers. These works often exhibited a notable increase in the number of lacquer layers, with some reaching thicknesses of one or two hundred layers. Consequently, the patterns exhibited fluctuations in both upward and downward directions, while the layers exhibited a notable richness, so augmenting the perception of three-dimensionality. The emergence of the carving lacquer art during the Ming Dynasty is a significant advancement in this artistic tradition. During this period, various common flowers, including peonies, camellias, pomegranates, hibiscus, chrysanthemums, and lotus, were employed as strategies for pattern manipulation.

Table 2 Ming Dynasty carved lacquer ware.

Carving lacquerware pictures	Technical Features	Decorative patterns
 a. Carved red waterfall viewing eight square, Ming dynasty, Red paint, Diameter: 17.8 cm	After applying thick red paint, carve on it. The plate carving is delicate, the knife technique is round, and the grinding is smooth, making it a masterpiece of lacquer carving.	Carve three patterns to represent different spaces of heaven, water, and earth. Carve pavilions, pine trees, and figures on the plate. The edge of the plate is carved with a pattern of flowers.
 b. Carved red flower shaped plate, Ming dynasty, Red paint. black paint, Diameter: 36.8 cm	The use of a carving knife is proficient and rounded, with fine carving. The blade edge is polished smooth and delicate, without revealing any edges or marks of the knife.	Carved landscape pavilions on the plate, with plum blossom patterns carved on the edge of the plate

Note. a., b. Collection of Palace Museum, Ming dynasty.

Table 2 (continued)

Carving lacquerware pictures	Technical Features	Decorative patterns
 c. Character circular box, Ming dynasty, Red paint, Diameter: 3.8x10.5 cm	The lid and box are both carved on both sides, with a shiny texture of paint, fluent cutting techniques, and rounded edges.	Against the backdrop of auspicious clouds, mountains, rocks, and ancient trees, the figures are carved above with elegant and vivid animal postures.

Note. c. Collection of Palace Museum, Ming dynasty.

Based on the information in Table 2, the researchers analyzed the artistic features characteristics of Ming Dynasty carved lacquerware as follows:

Works with landscape characters as the theme are usually carved with character stories on a plate or box surface, with three types of brocade patterns representing heaven, earth, and water below the pattern. The carved lacquer has a smooth edge and emphasizes grinding, with a bright and rosy colour and a thick paint layer.

During the Qing Dynasty, artistic representations frequently featured vibrant character figures and picturesque landscapes. These embellishments primarily served as a means to convey the profound emotional states experienced by the creators. During the Qianlong era, the decorative motifs of carved lacquer exhibited an increasing diversity, with a continuous emergence of novel themes. During the Ming Dynasty, there existed ornamental motifs that replicated the amalgamation of characters and propitious patterns. Additionally, themes like as fish, dragons, and sea creatures were shown inside the undulating waves of the sea.

Table 3 Qing Dynasty carved lacquer ware.

Carving lacquerware pictures	Technical Features	Decorative patterns
 a. Carved red bergamo cover box, Qing dynasty, Red pain, Diameter: 12.7x35.7 cm	The carving process is complex and exquisite, and the knife technique is delicate and smooth.	The lid of the box features a bergamot pattern, and the bottom features a brocade pattern with exquisite decorations.

Note. a. Collection of Palace Museum, Qing dynasty

Table 3 (continued)

Carving lacquerware pictures	Technical Features	Decorative patterns
 b. Carved colorful spring life treasure box, Qing dynasty, Red paint, Diameter: 10×19.2 cm	The paint applied is very thick and heavy, with full weight and profound knife technique	The lid features cloud patterns and intertwined patterns, with floral patterns surrounding it.
 c. Carved paint eight auspicious Fang Sheng set box, Qing dynasty, Red paint Diameter: 35×15×13 cm	The carving technique is sharper, with a strong sense of layering, clear edges and corners, and precise cutting techniques.	The cover is a patterned brocade ground, with dragon and phoenix patterns adorned with floral patterns.

Note. b., c Collection of Palace Museum, Qing dynasty

Based on the information in Table 3, the researchers analyzed the artistic features characteristics of Qing Dynasty carved lacquerware as follows:

Carved lacquer works decorated with mythological stories and religious themes are also more common. During this period, lacquerware also appeared with Sanskrit, lotus, Buddha, and other patterns. The floral patterns had a strong three-dimensional sense and were rich in layers, making them highly characteristic works of this era.

The design of modern carved lacquer products can learn from the decorative style of the carved lacquer works in the Yuan, Ming and Qing dynasties, feel the expression of carved lacquer under different patterns, understand the cultural connotation of these patterns, and inherit and carry forward good design points by taking the essence from them. Through in- depth exploration of works from the Yuan, Ming, and Qing dynasties, the beauty of materials, carving techniques, and pattern design are perfectly integrated to create popular carved lacquer products.

2. Research on the application of carved lacquerware technology in modern product design

2.1 The Application of Carved Lacquer Craft in Jewelry Design

When it comes to the combination of paint and jewelry, many people find it a new concept and feel very unfamiliar. In fact, the practice of using lacquer in jewelry production has been around since ancient times (Chen, 2020). Nowadays, the audience for jewelry products is more modern women, who are more sensitive to colour changes and have higher requirements for lacquer craftsmanship. Carved lacquer craftsmanship is more widely used in modern product accessory design. In modern product design, lacquer carving technology is also widely used in jewelry such as necklaces, bracelets, and earrings. These accessory designs have become more beautiful and artistic due to the assistance of lacquer carving technology.

Table 4 Carved lacquer jewelry.

Carved lacquer stationery design	Material	Pattern	Design features
 a. Nan Sun, Carved lacquer bracelet, Diameter: 2 cm	Paint, metal	Auspicious pattern plum blossom	Innovate and improve traditional craftsmanship, drawing on different forms of artistic expression in terms of artistic effects.
 b. Nan Sun, Carved lacquer earrings, Diameter: 2 cm	Paint, metal	Innovative patterns	Drawing on the expression forms of international brands in symbolic concepts and seeking the inherent requirements of Chinese people in Culture.

Note. a., b. From (Nan Sun, 2020)

Table 4 (continued)

Carved lacquer stationery design	Material	Pattern	Design features
 c. Feng Lu, Carved lacquer necklace pendant, Diameter: 5x3 cm	Paint, metal	Auspicious pattern peach blossom	Fully utilize the beauty of materials, extract elements from traditional materials, and borrow and transform different types of artistic forms.

Note. c. From (Feng Lu, 2021)

2.2 The Application of Carved Lacquerware Technology in Stationery Design

The aesthetic ideology of ancient China exhibits a wealth of vibrant and diverse characteristics. According to the principles of Chinese Confucianism, the concept of the "Unity of Heaven and Humanity" posits that the inherent beauty of nature is derived from its morality, while the aesthetic appeal of human emotion is also considered beautiful. Taoism posits that beauty is exclusively derived from elements that are characterized by their wondrous, luminous, gentle, and natural qualities. According to Qi (2022) Using stationery design as an illustrative case, it becomes evident that contemporary carved lacquer works have undergone alterations in terms of material composition and colour coordination. These modifications involve the incorporation of more auspicious symbolism and the integration of floral and avian motifs into the patterns. Furthermore, these designs are imbued with modern aesthetic sensibilities, resulting in a more diverse and visually appealing graphic composition.

Table 5 Carved lacquer stationery.

Design of carved lacquer stationery	Material	Pattern	Design features
 a. Feng Lu, Carved paint, bookmark, Diameter: 2 cm	Paint, wood, metal	Auspicious patterns, longevity patterns	In terms of aesthetics, it combines modern aesthetic needs, but in terms of practicality, it is slightly cumbersome. In terms of design, more attention is paid to not only showcasing the beauty of carved lacquer but also facilitating its use.
 b. Feng Lu, Carved lacquer pen box Diameter: 30x5x5 cm	Paint, wood,	Baoxiang Flower, Plum Blossom Magpie	In terms of production, the traditional carved lacquer process is continued, but the plum blossom image is not full enough, giving a stretching effect. Most of the blooming plum blossoms are not flexible at one angle, and there is no detail.
 c. Chao Cao, Carved lacquer fingerprint lock notebook, Diameter: 210x14.8 cm	Paint, leather	Dragon pattern, auspicious cloud pattern, Sanskrit lotus flower	Give full play to the beauty of the material, and the patterns belong to the religious style, combined with delicacy.
 d. WenJie Liu, Carved lacquer phone case, Diameter: 147x72x7.8 mm	Paint, resin	Sanskrit lotus, Bodhisattvas ,winding pattern	Strong practicality: the phone case is all composed of paint with a bright surface, making it visually more luxurious.

Note. a., b. From (Feng Lu, 2021)

c. From (WenJie Liu, 2020)

2.3 The Application of Carved Lacquer Craft in Furniture Design

Quality materials "refers to the degree of impact raw materials have on the quality of handicraft" (Naidu, Chand, & Southgate, 2014). emphasized the need to use high-quality materials to create excellent-quality artifacts. Chinese craftsmanship emphasizes the natural quality of materials, advocates for "applying techniques based on materials", and pursues a return to simplicity. Traditional Chinese arts and crafts always prioritise the characteristics of materials in terms of shape or decoration, fully utilizing and promoting the beauty of materials (Tian, 2008). Furniture made by combining lacquer techniques is called lacquer furniture. It refers to a type of furniture that uses raw lacquer as the main material and auxiliary decorative materials such as pigments, bones, stones, metals, shells, etc., combined with techniques such as painting, carving, and inlaying, to paint the surface of furniture components and achieve the aesthetic requirements of lacquer decoration itself. The art of carved lacquerware is most prominent in lacquer furniture.

Table 6 Carved lacquer furniture

Carved lacquer furniture design	Material	Pattern	Design features
 a. Ning Ma, Carved lacquer official hat chair, Diameter: 60x48x115 cm	Paint, wood,	Auspicious patterns bring good luck to everything	The chair has a dignified posture, with persimmons painted in yin and yang and branches and leaves inlaid with slightly lighter colored wood, which has a good decorative effect.
 b. Ning Ma, Carved lacquer ring chair Diameter: 63x48x101 cm	Paint, wood,	Magnolia, Begonia, Peony	The overall shape is plump, elegant, and soft, emitting a refined and elegant aura with an elegant beauty. Proficient in carving techniques and powerful in beauty.

Note. a., b. From (Ning Ma, 2017)

Table 6 (continued)

Carved lacquer furniture design	Material	Pattern	Design features
 c. Ning Ma, Carved lacquer Arhat bed Diameter: 205×105×77.5 cm	Paint, wood,	Bat pattern, longevity peach pattern, cloud pattern, Sifang brocade pattern	Combining lacquer carving techniques with traditional palace furniture techniques, a large number of auspicious patterns are used, resulting in a round and full carving of the entire picture, with a smooth hand feel and excellent tactile and visual effects.

Note. c. From (Ning Ma, 2018)

Conclusions and Discussions

Conclusions

1. The Spiritual Inheritance Value of Carved Lacquer Ware

In modern product design, carved lacquer has spiritual inheritance value. In product design, designers convey their design concepts. The application of carved lacquer craftsmanship in current products can enable people to understand traditional Chinese culture and lacquer craftsmanship, and its spiritual connotation can be conveyed to more people, creating emotional resonance among audiences and designers and also being conducive to the inheritance and development of lacquer craftsmanship spirit. (Zhang, 2022). The integration of carved lacquerware into modern product design can make the designed products blend into traditional culture while having a sense of science and technology, so that the traditional culture and craft are recognized by more people. Product design is a product that integrates traditional culture and modern technology. Combining traditional lacquer language with modern product design forms can reflect dual cultural characteristics (Tan, 2019).

The civilization of lacquerware has lasted from the Stone Age to today and should be recognized and valued by modern people. The application of carved lacquer ware in handicrafts, daily necessities, and even decorations also transmits the spirit of lacquer craftsmen. Make the inheritance of lacquer spirit more valuable. Consumers can feel the ideas, spirit, and craftsmanship conveyed by designers through products.

2. Practical Inheritance Value of Carved Lacquer Ware

Aesthetics and practicality are crucial for modern product design. Lacquerware, one of the products that combines aesthetics with practicality, occupies an important position in modern product design. Carved lacquerware has practical inheritance value in modern product design. For example, the jewelry box that girls often use combines aesthetics and practicality. This lacquer design makes it convenient and orderly for the audience to store during use and can also save space to a certain extent. There are also many applications of carved lacquer in modern home design, such as common screens and decorations. The storage box made of carved lacquer craftsmanship can meet the basic performance requirements of decorative items while also storing smaller items, making it more practical. This also signifies the practical inheritance value of carved lacquer in modern product design.

Carved lacquer product case:



Figure 3 Beijing Carving Lacquer Factory, carved lacquer screen, Paint. wood, 4×50×180 cm

Note. The lacquer screen made by combining carved lacquer and wood adopts the traditional dragon pattern but incorporates modern concepts in the treatment of cloud patterns. From (Beijing Carving Lacquer Factory, 2018)



Figure 4 WenJie Liu, Carved lacquer jewelry box, Paint. wood, 30×18×15 cm

Note. The method of combining carved black paint and carved red paint is more colorful and visually more three-dimensional. From (WenJie Liu, 2020)



Figure 5 Yue Li, Carved lacquer mask, Paper. Paint, 20×25 cm

Note. The combination of carved lacquer and gilding techniques highlights visual effects and endless charm. From (Yue Li, 2020)

Discussions

Throughout the course of history, spanning from the Neolithic Age to contemporary society, the art of lacquerware has been passed down and refined across numerous epochs of transformation. As a result, the practice of carved lacquerware has found extensive application in the realm of current product design. The shift in customer perception of product quality throughout the latter half of the twentieth century led to an increased preference for handmade goods (Luckman, 2015). In addition, the creative industry provides a new path for the development of traditional craft intangible cultural heritage. Modern science and technology and creative design can play a "activating" role in intangible cultural heritage. On the one hand, traditional craftsmanship needs to enhance creativity and cater to the current consumer market and modern aesthetic trends; On the other hand, strengthening cooperation with some well-known furniture and jewelry brands, producing practical products such as furniture furnishings and jewelry, and increasing awareness are also its creative path to expand the market.

With the continuous progress and development of lacquerware technology, carved lacquerware can also be widely used in the design and artistic decoration of other products.

Suggestions

1. In the specific research of carving lacquerware, carving techniques should be a key focus, and the advantages of carving lacquerware should be fully utilized. Further development is needed for the modernization and improvement of carving lacquerware techniques.

2. Provide more feasibility for traditional lacquer carving techniques to represent modern product design. In terms of design and development, it is also necessary to actively learn from successful lacquerware development experiences at home and abroad, and carry out product peripheral development, such as brand and packaging design (Jiang, 2014). Improve daily products that not only contain traditional cultural atmosphere but also conform to the aesthetic concepts of the times.

3. Fully utilize the diverse materials of today's era, inherit and innovate craftsmanship techniques, leverage the creative abilities of designers themselves, and explore the unique manifestations of lacquer art at a deeper level (Wang, 2019).

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