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Popular trends in the use of forged elements in the interior and exterior of residential and commercial spaces

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Abstract

The article systematizes and characterizes the most clearly manifested and popular trends in the use of forged elements in the interior and exterior of residential and commercial spaces. The relevance of this topic is due to the unique ability within the framework of the considered approach to combine aesthetic expressiveness, durability, as well as functionality. Modern architectural and design projects actively turn to this traditional art form, which requires an analysis of historical experience, technological achievements, and available opportunities. The purpose of the study is to identify the key trends shaping the role of forged products in the design of spaces, as well as to summarize the knowledge accumulated to date about the stylistic and functional aspects of their application. In the course of work, contradictions were discovered in the scientific literature: some authors focus on the need to preserve traditional technologies, while others emphasize the crucial importance of innovation to increase productivity and adapt forging to current requirements. The results demonstrate that the studied elements remain in demand due to their versatility, the ability to harmoniously integrate into various stylistic concepts, and create accents that emphasize the individuality of the space. The main trends are the use of wrought—iron stairs and railings, decorative grilles on windows, gates and fences, furniture with metal elements, loft-style lighting fixtures, balcony fences, garden accessories, small architectural forms, metal panels and art objects, openwork partitions. The article will be useful for architects, interior designers, specialists in the field of artistic metalworking, as well as researchers studying the history and development of decorative and applied arts.

Keywords: Architecture; Décor; Design; Residential and Commercial Spaces; Interior; Forging; Metal; Technology; Exterior

1. Introduction

For centuries, forged products have been associated with elegance and durability, making them a sought-after element in both interior and exterior design. Today, interest in these items is being revived due to their ability to combine artistic value with practical utility. Consequently, many contemporary researchers explore the key applications of forged elements in residential and commercial spaces, focusing on current trends and unique design solutions.

A pressing issue lies in the insufficient systematization of the evolution of this field through the lens of a cultural phenomenon and architectural design tools. Modern trends necessitate a retrospective approach to identify key patterns, establish stylistic parallels, and outline prospects for integrating forged elements within the context of new materials and technological innovations.

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2. Material and methods

The preparation of this article involved comparative analysis, systematization, synthesis, and generalization. The sources and materials on the discussed topic can be conditionally divided into several groups: historical aspects, technological features, decorative and artistic significance, and design nuances.

The retrospective study of forged items is addressed by Y.S. Kalganova [6] and D.V. Khodorova [9]. These works emphasize the importance of studying artistic forging as an integral part of decorative and applied arts, highlighting its evolution and influence on aesthetic taste formation. The researchers focus on the medieval European context, examining how it reflects the cultural and economic characteristics of the era. Special attention is given to the value of heritage preservation in modern interiors and exteriors.

The technology of forged product manufacturing is characterized in the works of A.V. Bogdanov, O.L. Babasheva [3], I.G. Mukhnurova, and A.I. Vaginas [8]. These authors investigate innovative methods of metal processing, noting increased efficiency due to the application of modern tools and materials. The significance of traditional techniques is underscored as essential for maintaining the authenticity of architectural projects.

The decorative value of these elements for residential and commercial buildings is thoroughly analyzed in the works of Y.S. Antonenko, T.V. Salyaeva [2], and L.A. Chumakova [10]. Forged finishes are considered integral to urban environments, with an emphasis on their role in shaping cities' visual identities. The use of artistic forging in interiors is explored, highlighting its ability to accentuate spatial style and add individuality to objects.

Design aspects, including compositional solutions and functionality, are discussed in the publications of N.V. Domovtseva [5] and N.G. Matovnikova with co-authors [7]. These studies analyze the artistic richness of forged items, noting that the harmony of forms and ornaments plays a key role in creating imagery. The researchers focus on designing park fences, proposing optimal approaches to combining decorative and practical functions.

The decoration of facades and their interaction with the surrounding environment are elaborated by V.S. Gusev [4] and R.V. Abramov [1]. Their works examine architectural eclecticism, emphasizing the significant role of forged elements in creating expressive objects.

A review of the literature revealed several contradictions. Some authors emphasize innovations, while others insist on preserving traditional approaches. The mechanisms of integrating forging into modern ecological and minimalist trends remain insufficiently addressed. Additionally, few studies comprehensively explore steps for incorporating forged elements into "smart" home and commercial systems, leaving this as an important area for further research.

3. Results and discussion

Forged elements occupy a distinctive position in architecture and design due to their unique aesthetics and functionality. Their history spans millennia, beginning in antiquity when metal items were used not only for protection but also to adorn homes and public spaces. A brief historical overview provides a deeper understanding of their significance, evolution, and current trends, revealing their cultural and technological context. Understanding the history offers insights into the foundations of the present-day situation.

In antiquity, forged elements were primarily utilized for utilitarian purposes. Metal doors, window grilles, and fences provided protection against external threats. The decorative aspect was minimal, reflecting the pragmatic spirit of the time. Examples can be found in the ruins of ancient Roman villas, where simple geometric shapes combined with functional reliability [6].

The Middle Ages marked the flourishing of artistic forging. Gates, grilles, and railings adorned castles, cathedrals, monasteries, and similar structures. Metal in the hands of artisans became a medium for artistic expression, with items often carrying symbolic meanings reflecting spiritual and social values. Forging reached its peak in the Gothic style, characterized by intricate patterns, pointed structures, and plant motifs [9].

During the Renaissance, forging gained a decorative dimension, becoming a significant component of architectural ensembles. Examples include balcony railings, staircases, and wrought iron doors adorned with intricate patterns. The Baroque period that followed introduced even greater attention to detail, with floral patterns, elaborate lines, and symmetry emphasizing the luxury and sophistication of objects.

The 19th century was marked by significant changes due to industrialization. Forging, previously a manual craft, embraced mechanized production methods. This broadened the accessibility of forged elements and their application in residential and commercial buildings. Concurrently, new styles such as Art Nouveau emerged, integrating these elements into architecture. Curved lines inspired by nature dominated the design of windows, doors, and staircases.

The 20th and 21st centuries have been an era of synthesis, blending traditions with new technologies. Forged objects have retained their decorative role but gained additional functionality through combinations with other materials such as glass, wood, and concrete. Contemporary designers continue to draw on historical styles, reinterpreting them through the lenses of minimalism, high-tech, and eco-design [6].

When considering contemporary realities, it is essential to emphasize that the study of retrospectives provides a key to understanding and accurately interpreting current trends. The following aspects should be taken into account (Fig. 1):

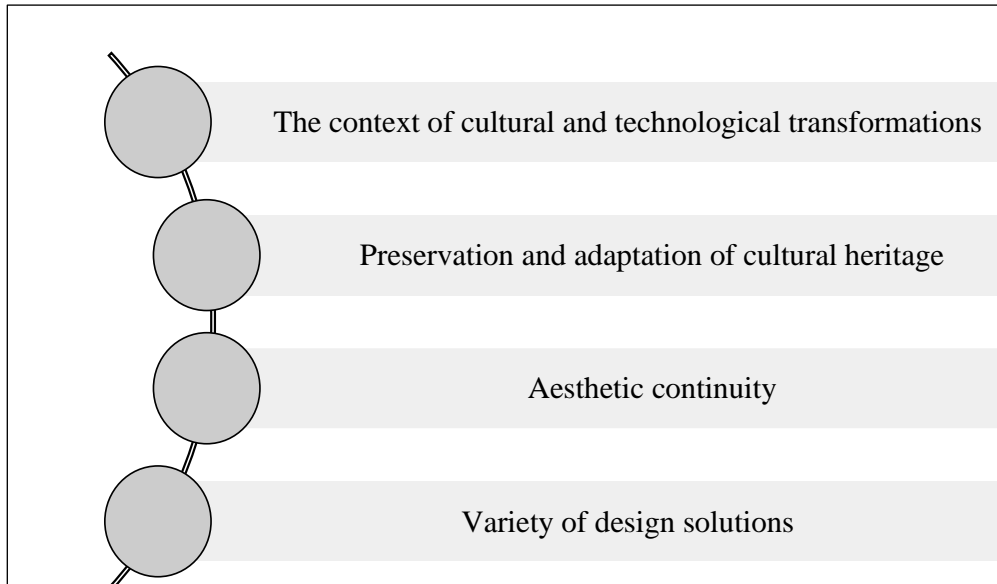


Figure 1 The use of forged elements in the interior and exterior: the connection between retrospective and modernity [1-3, 6, 9]

The history of forged items reflects not only the artistic preferences of different eras but also the development of metalworking technologies. For example, the transition from manual forging to mechanized processes in the 19th century dramatically expanded the scale of application for these elements. Modern designers, inspired by historical styles, utilize advanced techniques such as laser cutting and 3D printing to achieve unique results.

These items often form a part of cultural heritage. Their use today is frequently associated with preserving the identity of buildings. For instance, restoring architectural monuments requires a deep understanding of historical forging techniques.

A retrospective perspective helps identify which elements remain relevant. Ornamental patterns characteristic of Gothic or Art Nouveau styles continue to be used in contemporary projects but are reimagined to align with minimalist trends.

Understanding the history of forging broadens designers' resources, enabling them to select from a wide array of styles and motifs. This is crucial for creating unique custom projects as well as for mass production aimed at diverse consumer preferences.

The application of forged elements in interiors is characterized below (Fig. 2).

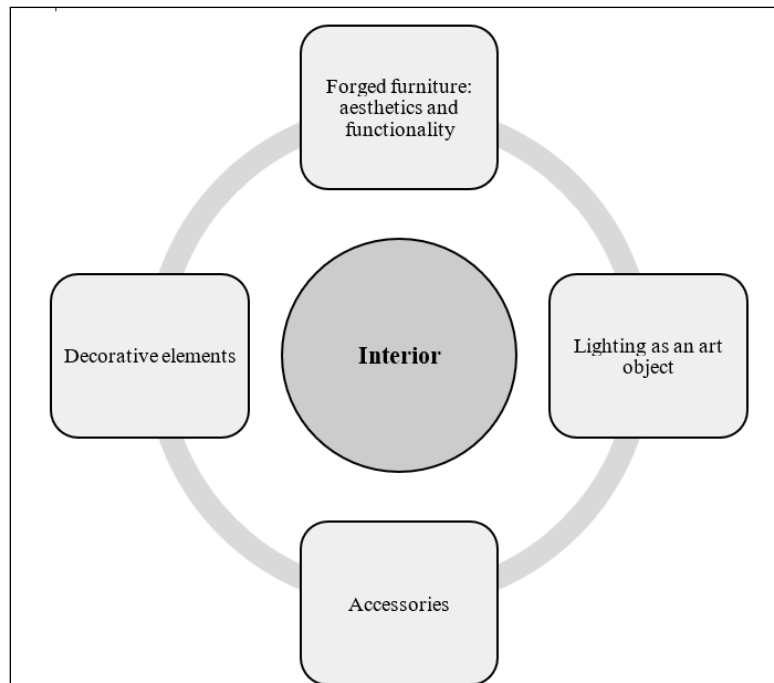


Figure 2 Areas of manifestation of trends in the use of forged elements in the interior [3, 4, 10]

Forged furniture has become one of the most sought-after solutions in interior design, especially in loft, Provence, and Art Deco styles. Particular attention is given to beds with intricate patterns, dining tables with delicate legs, and shelves and coffee tables. Such solutions are not only durable but also serve as accent pieces, shaping the visual identity of the space.

An example of an innovative approach is combined items where metal is paired with wood, glass, or leather. This combination allows forged furniture to integrate seamlessly into modern interiors, striking a balance between industrial rigor and homely comfort.

Light fixtures and chandeliers are now viewed not just as sources of illumination but as works of art. Geometric forms, minimalist structures, and asymmetric elements resonate with designers working in an eclectic spirit [4]. These items are often combined with modern technologies, such as LED lighting, ensuring energy efficiency without compromising artistic value.

Frames for mirrors, flower stands, shelves, and hooks are small details frequently employed to add refinement. Emphasis is often placed on custom-made items based on individual designs. This approach enables these objects to fit even into small spaces while maintaining their functionality.

Regarding trends in the use of forged elements in exteriors, their manifestations are presented in Fig. 3.

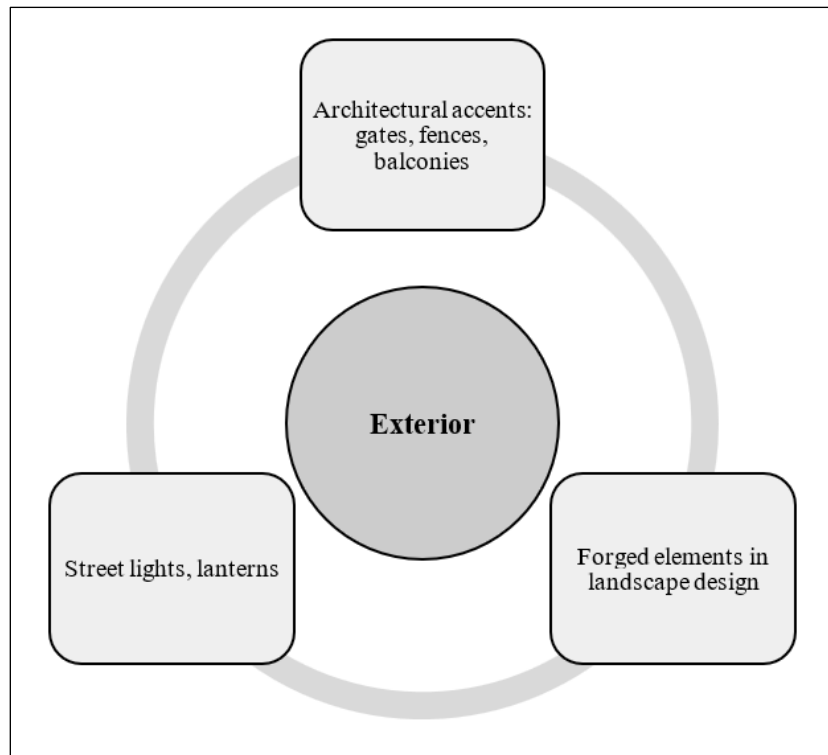


Figure 3 Areas of manifestation of trends in the use of forged elements in the exterior [1, 2, 7, 8]

Forged gates and fences continue to symbolize status and sophistication. Modern trends incorporate a combination of strict geometric lines and floral motifs, emphasizing the individuality of the property. Particular attention is given to anti-corrosion coatings, which extend the lifespan of the metal.

Balcony railings serve not only as safety features but also as aesthetic highlights of facades. Curved lines reminiscent of Baroque and minimalist modern-style constructions remain popular.

Metal gazebos, arched trellises for climbing plants, and benches are recognized as central elements in gardens and courtyards. Designers actively utilize artistic forging to create romantic and cozy spaces. A recent trend involves using these structures for vertical landscaping: metal frames serve as foundations for plants, creating the effect of "living walls."

Outdoor lanterns with forged elements are gaining popularity due to their ability to combine functionality and decorative appeal. Such items are frequently installed along pathways, near entryways, or in recreational areas. For commercial properties, such as restaurants and hotels, preference is given to designs with patinated finishes, which evoke an antique aesthetic.

Modern trends in this domain include the use of innovative materials and technological advancements. For instance, specialized coatings for metal are employed to prevent corrosion and enhance resistance to environmental factors. Additionally, laser technology is increasingly utilized for precision cutting of intricate patterns, reducing production costs and expanding design possibilities.

Sustainability plays a crucial role in the growing popularity of forged elements. Many companies offer products made from recycled metal, aligning with contemporary sustainability standards. This approach reduces environmental impact and provides customers with unique items that carry a sense of history.

It is worth briefly highlighting the specifics of the commercial sector. Forged solutions are often utilized in restaurants and cafes to create a distinctive atmosphere. Examples include bar counters with metal inlays, decorative partitions, and outdoor furniture, which contribute significantly to the venue's uniqueness. In commercial spaces, these elements are also used as part of branding. Metal signs, logos, and unique shelving help create a memorable identity and emphasize the exclusivity of the business.

4. Conclusion

The exploration of the historical use of forged elements serves not only as a tribute to tradition but also as a source of inspiration for contemporary artisans. Analyzing the retrospective context provides an opportunity to understand the evolution of aesthetics and technologies while proposing solutions that meet modern demands and maintain a connection to cultural heritage. This backward-looking perspective enriches projects with meaningful depth, making them more expressive and unique.

In current conditions, forged elements are experiencing a renewed surge in popularity due to their combination of aesthetic appeal, functionality, and durability. Modern advancements have significantly expanded their applications, making these elements accessible to a broader audience. In both interior and exterior designs of residential and commercial spaces, they serve as distinctive accents that shape style and emphasize individuality. Their resistance to fleeting trends, coupled with their ability to integrate into diverse styles, makes them a universal choice for creating harmonious and expressive environments.

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