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Exploration of the Filigree Technique in Metalsmithing for Design and Fabrication of Photorealistic Bust

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Abstract

Curling, twisting and plaiting of fine pliable threads of precious metals and arranging them in a precise pattern after which it is fixed by soldering is the technique of filigree which is predominately used in jewellery making. Metalsmiths are sometimes restricted by objects that can be created using the filigree technique, due to its elaborate and yet delicate nature of the technique, which only allows for the creation of big size objects by using of a lesser amount of metal. Hence, the study aimed at exploring a new materials and methods for the preservation of the filigree techniques by determining whether the limitations in producing artefacts other than jewellery-scaled design irrespective of the sizes and the design could be overcome. This was achieved by applying the filigree technique in jewellery making to design and produce a life-sized photorealistic bust. The researchers used the studio-based methods under the qualitative

research approach. The results of the study contradict the notion that application of filigree technique in metal crafts is confined to jewellery-scaled designs. On the contrary, metalsmiths and jewellers stand the chance of producing any artefacts with filigree techniques if they adopt proper workshop practices with right materials, notwithstanding the design and size of the artwork to be produced. This means that thinking of a filigree technique for a specific work has to be broaden based on the principles of the design in terms of its function, aesthetics, cost and support not forgetting its practicality, operability, protection as well as safety. It is hereby suggested that further studies should be carried out to ascertain if the filigree technique can be combined with other techniques such as granulation, etching, casting as well as chasing and Repoussé techniques for the creation of metal artefacts other than jewellery and its related items.

Keywords: Cultural Heritage; Jewellery; Filigree technique; Photorealistic; Metalsmithing

1. Introduction

The comprehensive explanation that can be given to cultural heritage is the combination of a product and a process that allow societies the wealth of accomplishment that the past bequeathed to the present for the benefits of those unborn. Cultural heritage does not end at mountains and collections of objects, rather, it also includes traditions or living expressions such as oral tradition, knowledge and practices concerning nature or knowledge and skills to produce traditional crafts inherited from ancestors and passed on to their descendants (UNESCO, 2003). One of such traditional crafts that has been recognised as intangible cultural heritage is Filigree inlay. Hsu and Lucas (2013) have it that in the early 2000 when UNESCO was putting together the idea of intangible cultural heritage, made it possible for filigree inlay art to be selected as cultural heritage.

Filigree as a technique is the curling, twisting and folding threads of precious metal wire and fastening them to a specific design (Ren et al., 2020). In other words, filigree refers to metal (mostly gold or silver) wires interwoven to make a lace-like decoration. It is considered as the perfect form of art to be used for arabesque designs (Estate Diamond Jewellery, 2022). Arabesque is said to be an artistic form of decoration that is made of "surface decorations based on rhythmic linear patterns of scrolling and interlacing foliage, tendrils or plain lines, often combined with other elements" (French, 2017, p.23). The delicacy of

this art when it is done in filigree, makes it look like an alluring and feminine art form of jewellery (Cultural India, n.d.; Rashmi, 2021: The Palace Museum, 2016). In expressing his views on filigree works, Steffano (2013) opined that making filigree requires working with threads of silver, gold or other precious metal. It was further stated that it is unequivocally incredible to watch a jeweller doing a filigree work piece. Unlike other jewellery production techniques, things that are usually produced in filigree appear delicate and complex in their designs. It is interesting to note that metal artefacts that are made using this technique are authentic and unique, making them difficult to be duplicated through mass production either by industrial casting or any metal product fabrication process. This has been supported by Artstudio64 (2019) which alluded that "the art of filigree can only be made by hand". The beauty of filigree work becomes prominent when it is enhanced with precious gem stones, crystals or glasses to produce jewellery and other metal artefacts (Yan et al., 2016).

In expressing his view about intricacy in designing and producing filigree metalwork, Briceño (2011) indicated that the delicately woven wire has designs and a complexity familiar with that of vines and twines in their real form as compared to other items of precious jewellery (ring, bracelet, chain, etc.). Looking at the intricate weaves and twists patterns of this delicate metalwork, bring about spaces in a work that would otherwise have been an opaque piece (Africathoughts, 2012). Due to this, filigree making once became widespread among jewellers based on its complex nature and delicate appearance that enables the production of magnificent items by using the least amount of precious metal as far as jewellery and precious metal works were concerned (Ren et al., 2020).

The relevance of filigree to the preservation of cultural heritage cannot be over emphasised. For instance, UNDP (2020) in cooperation with "Ec me Ndryshe" and through its EU-funded `Inter-community Dialogue through Inclusive Cultural Heritage Preservation` project implemented filigree craft knowledge and skills activities for women and youth through educational and capacity development programme. Moreover, the activity also embarked on documenting and promoting filigree craft as an intangible cultural heritage asset on the brink of extinction thus developing a strategic management document which aims to transform the Filigran enterprise in Prizren into a sustainable entity. To bring the filigree skills closer to general public, a documentary, titled "FILIGREE – Craft of the future" was produced. The documentary does not only present the work done but also captures centuries long history of craftsmanship reviving the

ancient art of filigree, silver making jewellery and ornaments. The burdensome nature of producing an item with filigree technique is not only associated with the fabrication process but also with the design conceptualisation. The word design has a very broad concept which makes its meaning greatly vary from one field to another. Design has diverse definitions because some designers categorise design based on differences or similarity it had with other activities. An example is the one by former President of the UK's Design Council, Sir George Cox, who alluded that design in the simplest term is the connection between creativity and innovation. His explanation was that the activity that materialises the ideas and thoughts of users or consumers into a practical and attractive proposition is what is called design. In other words, the basic definition that can be given to design is the deployment of creativity to a specific end (The Drum, 2007). This makes design an integral part of the application of filigree technique in jewellery making to design and produce a life-sized photorealistic bust.

In another instance, design can be positioned between art and science because it utilises certain elements of the two fields. Relating design to art, in this regard, has to do with creating an art piece that communicates one's vision, ideas and feelings to the outsider. This makes the prime objective for a designer in this respect not just the expression of feelings that is intended to leave impressions but also to preserve cultural heritage such as the filigree technique. Likewise, relating design to science is done with the problem-solving aspect of science. In other words, design in science could be found in the way and manner that it addresses a particular need. Steve Jobs has sum this up by saying that "Design is not just what it looks like and feels like [rather] design is how it works" par (cited by Rajjan, 2018). More importantly in this instance is where the production of photorealistic bust using a technique which is known to be used in making jewellery. Kench (2022) opined that photorealism is a style of artwork that is created with the intention of obtaining the same level of realism and detail as a photograph. In view of this photorealism occasionally draws criticism from individuals who object to being called art and see it as little more than "mindless copying." The branches of art that practice photorealism include sculpture, painting and drawing but not in jewellery. To the extent that photorealistic paintings and drawings are often mistaken for photographs upon first glance. This study was positioned within the photorealism theory. Studies show that the 1960s saw the emergence of a brand-new aesthetic, photorealism, which went on to become one of the most significant art movements in history. Today's artistic activities are still affected by its vast influence. The radical art

style known as "photorealism" emerged in North America involving painters meticulously reproducing pictures on big, broad canvases (Lesso, 2020). But in this study, photorealism was not achieved using pigment on canvas or any other support rather, from a thin copper wire. It should be noted that artist who practised photorealist displayed a remarkable technical proficiency in painting unlike anything that had come before it by successfully fusing the two diametrically opposed disciplines of painting and photography, a goal that this study has achieved (Lesso, 2020; Gardi, 2021). Overcoming the limitations and expanding metalcrafts that could be made with the filigree technique is the motivation factor of this study.

Physical activities, knowledge and practical abilities that are acknowledged as being a part of a community's cultural legacy encompasses the idea of intangible cultural heritage (UNESCO, 2011). One of such practices is the filigree technique. Filigree technique is usually used to create jewellery artefacts that blend beauty and the atmosphere of tradition with remarkable elaboration. Stamati et al. (2011) posit that despite the effectiveness of current 3D CAD/CAM systems for jewellery, there are some categories of jewellery that cannot be made even with the modern systems and filigree jewellery happen to be one of them. This implies that the complicated nature of filigree technique restricts the kind of design and size of metal works that can be fabricated apart from jewellery and jewellery-scaled items. The study therefore aimed to overcome these limitations and expand the spectrum of artefacts that are produced with filigree technique for the continuation of this unique traditional metal art technique. Hence, the researchers sought to explore the filigree technique in Metalsmithing to design and fabricate Photorealistic Bust'.

2. Review of Related Literature

Filigree is a jewelry technique use in creating delicate and intricate designs by using twisted and plain wires. It involves wirework and soldering together to form various items like rings, pins, pendants, and bracelets (Stamati et al. 2011). The origin of the word "filigree" is still debatable, with some believing that *filigrana* (thread of wire**)** and *granum* (grains or bead) is the Italian words from which it originates. Others suggest it may have derived from the Spanish word *Filigrana*, which means twist or fiber of a material. Interestingly, sometimes people confused filigree with another jewellery technique called *Joure* While filigree jewellery involves soldering wires together to create designs, *joure* jewelry is on the other hand made by perforating holes in a metal sheet to form a design (Kenanddanadesign, 2024). It's interesting how different techniques

can create similar-looking effects. Cultures like the Indians and Egyptians had their own wire works too, such as the *Trichinopily chain* (Figure 1).

Figure 1. A Trichinopily chain (Dawn 2015).

The Greeks and Etruscans were considered the first to produce filigree jewelry. The evidence this can be traced from in the kind of jewelry they made during that time. Filigree was a common element in various forms of jewelry, including delicate gold wire patterns and intricate flower designs, found in ancient civilizations like the Phoenicians and Romans. This means that filigree is considered as an ancient art form in history. Over thousands of years, ancient civilizations developed this technique, resulting in intricate designs that have stood the test of time. Although the popularity of filigree jewelry declined, it resurfaced in the medieval, especially Saxons, Britons, and Celts. Ireland became known for its exceptional filigree work, with the Ardagh Chalice and Tora brooch being remarkable examples (Figure 2(a) & (b)).

Figure 2. (a) the Ardagh Chalice, (b) Tora brooch (Britanica, 2023; Stevick, 1998).

There are four types of filigree: 1) Openwork is typically made of wire whose designs are produced without any base support. To keep the design cohesive, soldering is done. 2) The ground support, which uses a surface support—typically a metal sheet. The wire on the background is soldered during the construction of the pattern. 3) The third kind consists of combination of both ground support and openwork. This kind of filigree can be joined using a variety of methods, including soldering, split rivets, rivet bezels, and claws. Adding additional materials, such enamel or gemstones, to fill in the spaces between wires is the final but not least technique. In designing and fabricating of the photorealist bust, the researchers used the openwork filigree type.

3. **Materials and Methods**

This study focused inter alia on how filigree techniques in jewellery making could be used to produce any metal artefacts other than jewellery, irrespective of the design and the size of the item to be produced. This could help to expand the spectrum of the jewellers and metal smiths on the kind of artworks they can make with the filigree technique and thereby preserving the technique.

The researchers achieved the goal of the study by using studio-based research which falls within the qualitative research design. In this respect, the Studio-Based research which is positioned within the scholarly circles, specifically involves making of tangible item in addition to a written report component that is said to be exegesis. This makes Studio-Based research unique and rich as researchers who embark on studio-based researcher end up contributing to the body of knowledge in two forms; that is the creative process which primarily has at its core the making discipline and a written report. This is strengthened by Sullivan (2006)'s proposition that "the imaginative and intellectual works undertaken by artists is a form of research" (xi). It also conforms to Sullivan's art practice as research; inquiry into the Visual Arts in which he alluded that recent studies adopt existing and evolving methodologies and strategies for using art practice as research. In view of this, scholars in recent times have accepted the fact that art practice is a form of scientific research that is capable of responding to one another (exegesis and praxis) and are independent.

To support this, Marshall (2010) opined that studio-based research method involves the creation of artwork with a corresponding written component. She stated further that an artist's creative and intellectual works as a research endeavour are assessed on the basis of five (5) features:

1. There is the need to describe the subject matter of the artefact produced.
2. The iconography element in the artefact should be identified.
3. Highlight the impact of the media as well as the methods used in the production of the artefact.
4. In the artifact, demonstrate the principles of art as well as that of the organisation of visual elements, for example line, movement, colour, composition. texture, time and that of space.
5. The style and/or processes applied in the making of the artwork must also be described.

Description of subject matter of the filigree bust

An important question that one may ask if one comes in contact with the project is: why should the researchers use filigree technique to produce photorealistic bust. The answer is simple, in that the study is an innovation in the area of jewellery and metalsmithing. As it has been stated, the aim of the researchers in this study was to achieve three-dimensional photorealism sculpture piece (bust) using a jewellery making technique of filigree which is seldom an objective in jewellery making in order to preserve the technique.

Identification of iconography in the artefact

The personality in whose photo was selected for the project is the first president of the Republic of Ghana. The decision to pick Kwame Nkrumah as the main subject for the work was based on his local and global standing as he is a known personality both locally and internationally. The researchers expected that anybody who encounters the finished bust should be able to identify the personality with ease.

Highlight the impact of the media as well as the methods that were used in the production of the artefact

Here the researchers outline the tools, equipment, materials and the main methods that were used in the design and fabrication of the photorealistic bust using jewellery making technique of filigree.

3.1 Materials, Tools and Equipment Used

The projects were carried out using the following materials: copper wire (figure 3), silver solder (copper, zinc – brass). Likewise, the researchers used the following tools and equipment: Chasing hammer, bench anvil, rolling mill**,** gas cylinder**,** work bench and stool, pliers (round nose, bent chain, and flush cutter),

nylon hammer, tweezers, soldering table, metal ruler, dead blow, stakes and anvil. Electronic digital callipers, files (both smooth and rough), adjustable saw frame and blades were also used. Others are dividers, digital shears, scale and soldering kits and a cement model of the subject.

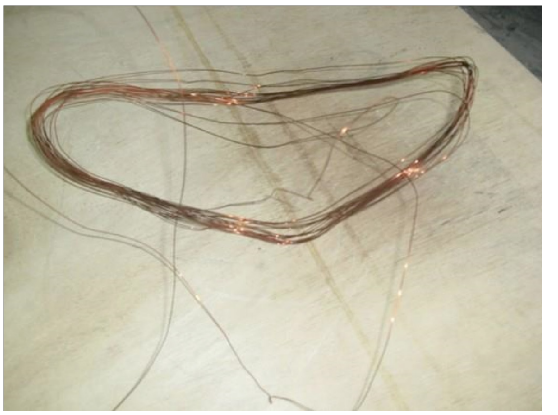
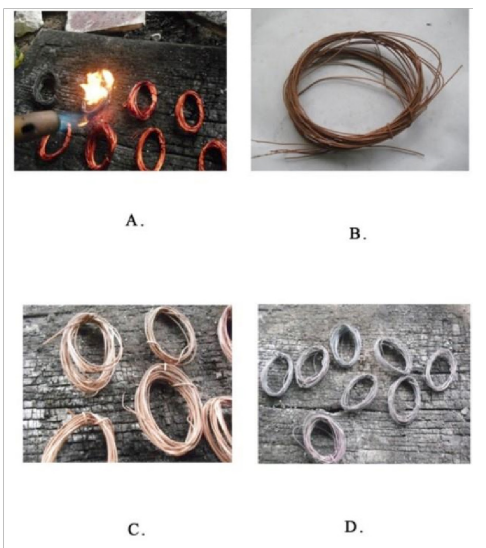


Figure 3. The raw material (copper wire) that was used for the work. Source: Author (Studio work).

3.1.1 Filigree wire preparation



Figures 4. Preparation of the filigree wire (4 stages).

As shown in figures 4(A-D) the wires that were used for the execution of the filigree bust went through four stages that include:

1. Removing the coated lacquer from the copper wire by burning.
2. Twisting the wire strands
3. Flattening the twisted wire by milling
4. Cleaning the twisted wire through annealing, pickling and rinsing.

An estimated length of 240cm of copper wire was cut at a time after which the wire was heated to burn off the coated lacquer. This was followed by twisting the wire. The researchers used three approaches to carry out the twisting of the wire to obtain the filigree wire. These were hand drill, rotary motor, table and wood block rubbing. At the initial stage of twisting the wires to obtain the filigree wire, two ends of the cut wires were first hand twisted to produce two strands at one end. The twisted portion was firmly put on a table whiles the untwisted portion was held in the left hand at a distance of about one foot after which the two strands were rubbed with a small wood block to produce the twisted wire. As the activity for the wire twisting continued the twisted portion was drawn away from the top of the table allowing the untwisted portion to be in a better position for it to be twisted. The wire was softened with an intermediate annealing until the entire wires for the filigree bust were twisted.
The next activity was flattening the wire. Two options were available to the researchers for the flattening the twisted wire, which were hammering and rolling. Due to its ability to ensure even dimensions, the +s opted for the roll milling technique. In using the rolling mill to flatten the twisted wire the researchers scalibrated the platens of the rolling mill to ensure the favourite thickness.

3.1.2 Description of style and the process (stages used in fabricating of the filigree bust)

The purpose of the study was to culminate the creation of a life-sized photorealistic bust which is photorealistic using ancient jewellery making technique of filigree. The fabrication processes were made in six stages. That is, constructing the frames, fitting the frames with twisted (filigree) wires, soldering, piercing, embossing, assembling of parts and finishing. In order to maintain the audience's interest and direct the viewer's eye through the work (filigree bust), many elements of design were employed.

Stage One: Construction of frames and Fitting of the twisted wire into frames

The process of fabricating the filigree bust started with the construction of large frames (Figure 5) with a 2mm square copper wires and subsequently sub-dividing it into smaller units. The frames were annealed for them to be malleable after that twisted wires were used to fill the frames to fit very tightly. The twisted wire made of 25g wire was used for the facial frame, while the rest of the body was constructed with 23g wire. There were three major styles used in filling the frame to obtain the filigree sheet. These included the linear type of the filling which is locally called 9,9 (nine, nine), the full coil, and that of densely wrapped type. The filigree wires were filled in the frame with the help of tools such as pliers, tweezers and cutters.

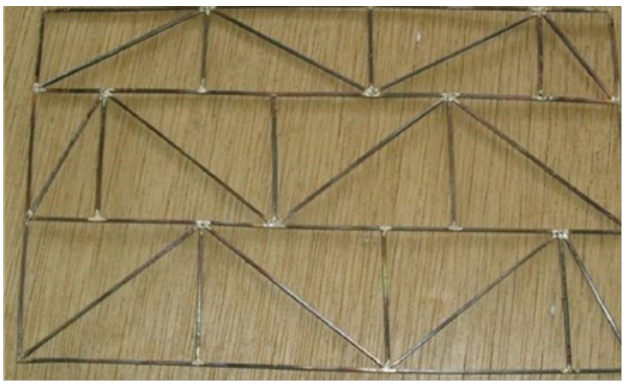


Figure 5. Constructed frame (Studio work).

A combination of straight, curved and diagonal filigree wire was used in filling the frames to trap the twisted wire one after the other. To obtain the desired design for the filigree work, the researchers manipulated the twisted wires in the frames to reflect the designs. In particular, it was difficult to fit the first three twisted wires in the frame especially during the filling of the square and rectangular spaces in the frames. This was more prevalent with the 25-gauge wire. What the researchers then did was to solder the first three fitted wires outside the frame before moving them to the frame. This action helped in filling the rest of the filigree wires in the frames at ease. At certain point in the process, the filled filigree wires were soldered after every 5 or 8 rows to pave way for the rest of the filling to be done thereby reducing the difficulties in holding the twisted wires in the frames.

Stage Two: Soldering the fitted frames

Soldering is a process in jewellery making whereby filler metal which is known as solder is melted for the purpose of bonding two or more metal pieces together. Usually, the filler metal has a lower melting point compared to the melting temperature of the base metal. As it has been indicated, the researchers used an open-work filigree type of the work. This made it wire-to-wire work without any support which posed a peculiar soldering challenge. To overcome this, a high refractory and heat-retention charcoal block was used as a temporary support of the work (Figure 6). This facilitated the soldering of the frame with the fitted filigree wire.

Figure 6. Linear filling that has been soldered.
Source: Author (Studio work)

Stage three: Piercing

After soldering all the frames with filigree wire fitted in them, the researchers obtained what they termed as Filigree Metal Plates (sheets). The filigree sheets were then pierced based on segmentation (Figure 7) that the researchers had done on the cement model of the person whose photorealism was to be produced, using the ancient jewellery making technique of filigree. Piercing here refers to the process of using a jeweller's saw frame fitted with a fine blade to remove unwanted material from a sheet of metal for the purposes of obtaining intricate shape or motifs.

Figure 7. Filigree plate pierced into segments.
Source: Author (Studio work).

Stage four: Embossing

The next activity that the researchers undertook during the production of the photorealistic filigree bust after piercing them into segments was embossing. Embossing may be defined as the formation of an impression of motif, decoration, lettering or pattern on another surface on a flat surface such as paper, cloth, metal or even leather, to produce a relief piece of work. When one is undertaking an embossing, s/he presses to push up the surface of the material, which adds a new dimension to the material by volume. Metalsmiths and jewellers make use of embossing to produce raised or sunken designs or relief on sheet metal.

In applying the embossing technique on the work, the pierced filigree metal sheets were pressed to push up their surfaces to add a new dimension by way of volume. To achieve this the pierced segments of the filigree sheet were placed one after the other on their corresponding portion of the model followed by hitting them with a rubber mallet to assume the shape and form of that particular portion of the model. A repetition of this process was carried out until all the components of the bust were completed.

Sage five: Soldering the components of the Filigree bust

Soldering can be defined as the process of placing two or more surfaces in close contact to ensure field continuity across the resulting interface. In other words, soldering is the process of bringing two or more metal pieces, tubes, pipe, or metal sheet bought into close contact to form one piece that has a continuity of a field traversing the resulting interface. It must be noted that

the metal surfaces to be soldered need be prepared so that the mating of the various parts will be perfectly done. As it has already been alluded to by the researchers, the fabrication of the filigree bust was constructed in parts before assembling them together. The work has three major components (head, Neck and the body/costume) with each having a number of units that constitute these major components of the filigree bust. For example, the head made up of the face under which forehead, eyes, nose, lips, cheeks, ears, chin, eyes and hair were made. There were also jumper and the cloth that composed the dress of the filigree bust. The embossed sections from the pierced filigree plates were soldered sequentially (Figure, 8, 9A-C, and 10A-D) in a well-ordered manner to build the life size photorealistic filigree bust of the first president of the Republic of Ghana in the person of Osagyefo Kwame Nkrumah.

Figure 8. Completion of the filigree bust's back.

Figure 9 (A-C). Assembled front portion of the filigree bust
Author's Construct (Studio work).

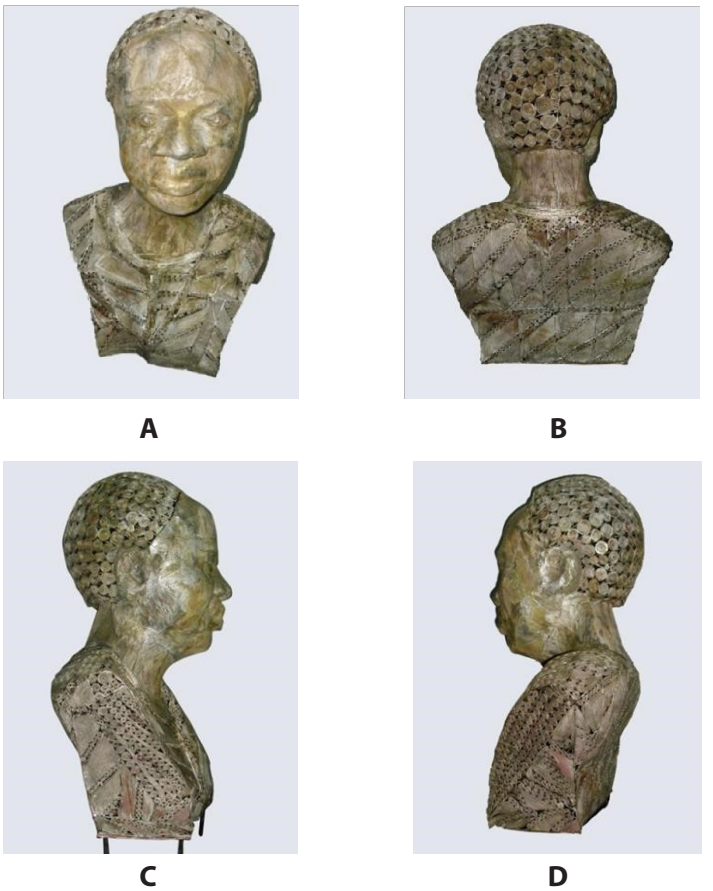


Figure 10(A-D). The four views of the constructed filigree bust. Author (Studio work).

Stage six: Finishing the filigree bust

Finishing as applied in the work is made up of the point where scratches and marks on the surface of the work were removed by the researchers. Various finishing techniques such as, polishing, patination and electroplating (gold, silver, nickel, and copper) were considered. The researchers settled on the use of silver electroplating for the finishing of the bust, on account that the powdered silver solder that was used for the work caused some parts of the bust being coated with silver already.

4. Results and Discussion

Figure 11. The complete fabricated filigree bust (Studio work).

This study aims to determine as to the limitations in producing artefacts other than jewellery-scaled design using filigree technique could be overcome, regardless of the design or size, through the application of filigree technique in jewellery making to design and produce a life size photorealistic bust of Osagyefo Kwame Nkrumah, the first president of Ghana. The outcome of the study indicates that it is possible to create any sculptural object using a filigree technique, regardless of design and type, through the use of the required material and workshop processes, as shown in the final work piece in Figure 11. The finding echoes what Artstudio64 (2019:2) said: "different small parts are created, then soldered together to build up a wearable sculpture". The literature records a close collaboration between filigree development and Greek and Etruscan cultures. Both cultures played a pioneering role in creating wire works in the past with them being said to be the first people to manufacture filigree jewellery. Furthermore, the literature review found no apparent correlation between filigree and the sculpture of bust. Unlike the researchers' fears, this study found no substantial difference between the methods of

producing jewellery-scaled articles using the filigree technique and that of the photorealistic filigree bust. The findings confirm the outcome of similar study in Artist/Historian by Briceño (2011), who created kangaroo filigree in titanium metal and laser soldering among other works. However, this study did not find any related evidence in the literature concerning the use of filigree techniques for producing photorealistic sculpture works.

Producing a photorealistic filigree bust was a wonderful experience: a process that pushed the researchers through different emotions, from uncertainty and desperation to enthusiasm, excitement and a successful victory. This reflects the experience shared by Artstudio64 who stated that "I push the fabrication process to its limits in experimentation with line and form, be they straight and austere or curved and intricate" (p. 2). The proponents of the study as practicing jewellers are not used to effectively creating photorealistic items or objects using established skills but they have been able to design and fabricate one of such objects. It must be highlighted here that it is considered that such an endeavour is impossible in the field of jewellery making. Findings of the study have however proven to be otherwise. This assumption or understanding comes from a lack of desire to explore all the opportunities provided by jewellery and metalsmithing working techniques.

The results of the research showed the integration of elements and principles of design by ensuring that the different parts were not infringed on the overall filigree bust. These include the following:

Lines: There are three dimensions of the visual direction through which the eyes travel as one contemplates the filigree bust.

1. *Shape*: Seamlessly mixes each section to give the shape to the bust.
2. *Texture*: The twisted wire used in the work gives the quality of the surface to tactile illusions.
3. *Balance:* the visual element of the surface of the bust that shows the spread of colour, texture and space in an effective manner to obtain a harmonious piece. Balances, both symmetrical and asymmetrical, were applied in the fabrication of the filigree bust. In some cases, the researchers varied the elements they applied at one part of the bust from the opposite sides; in others, the sides are partially different in term of the filigree wire filling notwithstanding, the work appeared balanced.
4. The face was made to stand out by the researchers by distinguishing it from the other parts of the work by the deliberate dense fitting of filigree wires in the facial segment that formed the face which become the focal point, of artwork.

5. The direction through the filigree bust leads the viewer's eye frequently to focus areas. Such motion is guided in the work along lines, edges, form and colour. The contrasts in the twisted wires' direction trigger movement.
6. The repeated patterns trigger the filigree bust, and even crates in the artwork.
7. The proportion in the fabrication of the filigree bust denotes to the size of the head relative to the other parts the body and the components of the face such as the eyes, mouth, nose and ears in the Kwame Nkrumah filigree bust.
8. Rhythm was created by repeatedly using more design elements to create an orchestrated movement feeling. Rhythm is fun and effective in order to keep the viewer's eyes going across the filigree bust.
9. *Unity* is the feeling of peace that provides a sense of completeness between all parts of the artwork. The nature of this bust exude Bust nature exudes completeness and concept of harmony.

Factoring these principles and elements of design in the study guided the researchers to organize their work so that they could transform ideas into concrete product (photorealistic bust as shown in figure 10). It must be stated here however that great designs for metalcrafts made with filigree technique are not usually invisible. This can sometime occur when the user of the design does not notice the presence of his or culture in the kind of works s/he produces using the filigree technique. This principle is more prevalent when the intended outcome is tilted towards interaction design as the design and production of a life-sized photorealistic bust using filigree technique in jewellery sought to achieve.

In this respect navigating a user interface should feel natural and unhindered as the filigree bust has turn to be. In other words, the user of the works designed in filigree should be able to make meaning of the rules surrounding the design as well as getting the understanding of the elements that make up the design. Meaning lines, shapes, contrast, repetitions and many others are what show the presence of an invisible hand. Notwithstanding, jewellers and metalsmiths who want to practice the filigree techniques in making items other than jewellery and jewellery-scaled works should be able to address the issues of which design is relevant and why such design should be important; clients should be able to tell the designer what they want and how they can use it to help them to find the best way to fulfil the requirements. This means that thinking of a filigree technique for a specific work has to be broaden based on

the principles of the design in terms of its function, aesthetics, cost and support not forgetting its practicality, operability, protection as well as safety. This in a way will help jewellers and metalsmiths to come up with a nice-looking metalcraft made with the filigree techniques that will preserve this intangible cultural heritage.

5. Conclusion

Filigree making is the process of curling, twisting and fine folding threads of precious metal wire and fastening them to a specific design by soldering. This implies that the complicated nature of filigree technique restricts the kind of design and scale of metal works that can be made in filigree, which are mainly jewellery and jewellery-scaled items. Against this background, the study aimed to overcome these limitations and expand the spectrum of artefacts that can be produced with filigree technique for the continuation of tradition and formal interpretation of the existing cultural patterns. Upon completion of the study, the researchers drew the conclusion that there is no explanation why filigree technology was limited to mainly ornaments and jewellery-scaled items. The successful execution of the research show that filigree technique, regardless of design and measurements, can be used to create any sculpture piece such as bust and photorealistic items.

The study has therefore opened an avenue for jewellers and metalsmiths to expand the spectrum of the metal artefacts that they produce thereby increasing their incomes. It is hereby recommended that further studies should be carried out to ascertain if the filigree technique can be combined with other techniques such as granulation, welding, casting as well as chasing and Repoussé techniques for the creation of metal artefacts other than jewellery and its related items.

References

Africathoughts, (2012, July). *The Art of Filigree* Available at: https:// africathoughts. blogspot.com/2012/07/the-art-of-filigree.html

Artstudio64, (2019). Filigree Jewelry Titanium Jewelry Sculptures. Available at: https://artstudio64.com/jewelry/

Aztec/Mayan, African, Curricula 25. Available at: https://scholarworks. lib.csusb.edu/cap-curr/25

Briceño, X. N. (2011). Filigree: A Migrant Metal Practice, PhD Thesis, Australia National University Australia.

Britanica, (2023, December 13). Ardagh Chalie. https://www.britannica.com/topic/chalice.

Cultural India, (2012, January 4). *All About Filigree Jewelry - An Ancient Indian Art*. https://www.culturalindia.net/jewellery/types/filigree-jewelry.html

Dawn (2015, April 24). Triconopoly for auction. https://dawnsdressdiary.wordpress.com/2015/04/24/trichinopoly-for-gifting/

Estate Diamond Jewelry (2022, July 282014). *What is Filigree?* https://www.estatediamondjewelry.com/what-is-filigree/

French, C. (2017). Patterns Around the World: Japanese, Maori, Islamic,

Hsu T., & Lucas, A., (2013, November 4). *Filigree Inlay Art: The Intangible Cultural Heritage of China*. Available at https://www.gia.edu/gia-news-research-filigree-master-bai-china

(https://www.google.com/url?sa=t&source=web&rct=j&url=https://en.unesco.org/creativity/sites/creativity/files/cdis/heritage_dimension.pdf&ved=2ahUKEwiI-NL60Jj9AhUW7qQKHfjoByUQFnoECBAQBg&usg=AOvVaw0N2PihPd22BqeWwdLIl0NV

Infokit UNESCO (2011). *What is intangible cultural heritage*. Available at https://ich.unesco.org/en/what-is-intangible-heritage-00003

Kauferson (n.d.). *The Ardagh" Chalice and Bowl Paten.* https://www.kaufersonline.com/the-ardagh-chalice-and-bowlpaten.html

Ken & Dana Design (2024). *History of Filigree*. https://shop.kenanddanadesign.com/pages/what-is-filigree#:~:text=Filigree%20is%20the%20delicate%20manipulation,metal%20into%20thin%2C%20threadlike%20strips.

Kench, S. (2022). *What is Photorealism — The Art of the Real Explained*. https://www.studiobinder.com/blog/what-is-photorealism-definition/

Lesso, R. (2020, July 21). *Photorealism: Understanding the Mastery of Mundanity*, https://www.thecollector.com/photorealism/

Marshall, C. (2010). *A Research Design for Studio-Based*. A Central Connecticut State University.

Rajjan, (2018, June 27)., *The design is not just what it looks like and feels like. The design is how it works — Steve Jobs.* Available at: https://oraajan.medium.com/the-design-is-not-just-what-it-looks-like-and-feels-like-the-design-is-how-it-works-steve-jobs-9b79674126bb

Rashmi, R. D. (2021, November 1712). *Silver Filigree Jewellery*. https://www.thehindu.com/arts/crafts/Silver-FiligreeJewellery/article12558673.ece

Ren, K., Min, W. J. & Xie, Y. (2020). A Preliminary Study on the Creation of Contemporary Filigree Craft. Art and *Design Review*. (Vol. 8, pp 228-236).

Stamati, V., Antonopoulos, G., Azariadis, P. & Fudos, I. (2011). A parametric feature-based approach to reconstructing traditional filigree jewelry. *Computer-Aided Design* (Vol. 43, No. (12).

Steffano (2013). MAZAL Precious indulgence /what is filigree. Available at: www.mazaldiamonds.com/blog-en/what is filigree/

Stevick, R. (1998). "The Form of the Tara Brooch". *The Journal of the Royal Society of Antiquaries of Ireland.* (Vol. 128, pp 5–16).

Sullivan, G. (2006). Research Acts in Art Practice, *A Jjournal of Issues and Research*. (Vol. 48, No. 1, pp 19-35).

The Drum (2007, May 31). *George Cox*. Available at: https://www.thedrum.com/news/2007/05/31/george-cox

The Palace Museum (2016). Classics of the Forbidden City (p. 208). Beijing: The Forbidden City Publishing House.

UNDP, (2020, January 15). *Rreviving the ancient art of filigree*. (https://www.undp.org/kosovo/news/reviving-ancient-art-filigree).

UNESCO, (2003). *UNESCO Culture for Development Indicators*

Yan, J. C., Zhang, M. F., Sun, S. Y. (2016). The origin and definition of the concept of filigree inlay. *Journal of Guangxi University for Nationalities* (Vol. 22, pp 30-38).

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