

The Coin mint between design creativity and technology**Dr. Eman abdel baky Mohamed**

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Eman-baky@mans.edu.eg**Abstract :**

Throughout the ages, currencies is important to move the economy, controlling the lives, basis of commercial transactions and living, hence the individual became in the journey of the constant search for money, So he has searched for a way to make a design currencies in different materials. Following the method of design and implementation of coins through the ages is important to understand the benefits of the development, looking for a way to design currencies in different materials of metals to mint it. Until the emergence of technology and modern machines to occur mutations in design and manufacturing. So we are forced to the development to keep up with the requirements and to use technology to achieve our goal. The "laser" has played an important role in the coins mint, it has developed the technology in all the world .It makes us getting more accurate and fast designs with a ratio of errors not mentioned. The researcher has taken the historical analytical approach in the presentation which Discussed designs and development throughout the history, especially in India and China and modern technology in America and Britain. Tracking the method of design and implementation of coin is important to understand the development that has occurred, and how modern technology like laser and different design programs has been exploited in the development industry. On a daily basis, there is no independent study in Arabic Discusses the techniques used in the mints coins industry or how the coin is designed by various programs and lasers to reducing Riggging.

Key words :

Coin, lasers, design

Importance of research:

- There is no independent specialized study in Arabic on techniques used in the industry and maintenance of coins throughout history, which is an addition to the Arabic Library.
- Following the mechanisms of the design and implementation in coin's mint is important to the economy of the country .
- Using laser and modern programs such as 3D MAX in the design and implementation of coins.

Hypothesis :

- Does technology have an impact on the coin's mint ?
- The importance of modern graphic programs in the coin's design.
- The use of laser in this industry .

Research methodology :

- An analytical history in which the researcher traced the appearance of currency in some countries and new technological techniques and finally presented some of those designs.
- Historically tracking the appearance of coins in countries such as China and India as well as modern technology in America and Britain.

Introduction:

Throughout the ages, coins have driven the economy and controlled the lives of individuals, communities and institutions largely. Currency is the basis for dealing.

The meaning of "currency":

A coin is one of the derivatives of the verb Handle , which means dealing between individuals and others. A person cannot live alone because he needs others, so there is a need for external dealings, not just at the level of families. "Currency" is a unit of exchange and trade between individuals and each other. The coin had many designs throughout history and their value has also varied over time everywhere .

Real and Account money :

Real Money has a physical value or presence, such as the currency that was traded in Arab countries before the First World War such as the English gold pound. But the (Account Money which are) used as an arithmetic unit such as the US dollar whose value is used to exchange.

Types of money:

Money includes a lot of types and each type has its own concept, for example, there is commodity money which was used before the appearance of real money ; this was by trading goods and the coin which is the main point of this research . The money also appeared in writing which is known as checks. Then there was a new type of money which is called Visa Card, which certainly makes it easier for a person to withdraw money, especially when traveling. And finally Cryptocurrency like Bitcoin. They are virtual currencies that typically use a decentralized network to carry out financial transactions, and the situation continues to evolve.

Coins:

They are pieces of metal made in certain shapes and sizes and produced by the government in large numbers, to improve the trade process and to make it easier. The coin appeared as a substitute for bartering . It was initially made of iron, copper or zinc and then made of gold and silver.

Currency history:

The beginning of trading between people was through the exchange of goods. For example, a certain amount of wheat was exchanged by olive, and it was called "Barter", and it has appeared on the walls of the pharaonic temples. The definition of the word "Barter" is (that an item is bought by exchanging another item). But there were some flaws in this system, including that some of the goods that were agreed upon are indivisible, so the barter system wasn't practical enough to evolve, So they thought about (Gold and silver) to use as as an alternative to goods. For example, in the Bronze Age, It was axes that were used in cutting trees that were used in bartering and the first coin was found from the Electrum metal which is a mixture of silver and gold, It was called Electrum because it's color was like pale yellow amber and it appeared about 600 BC in Asia Minor .

Currency design:

Initially they didn't care about the artistic design or the visual glamour or the design to all sides of the coin. All they had to do was facilitate business and determine the authority of each king over the vast places in his kingdom, then around 450 to 500 years BC, some Greek cities started

designing the face only coins after some ancient Greek Gods. (After it was just squares or lines)?, then it evolved up to design the two faces together.

Electrum coins:

The uses of those alloys were similar to gold. They preferred it to gold as Gold refining techniques were not prevalent in that era. (For example, the upper part of the Egyptian pyramid and the pharaonic obelisks), besides the coin mint, Electrum metal was used in the manufacture of thrones, carts, sculptures, figurines and jewelry. everything made of it such as jewelry and furniture is considered Historical. However, the difference between the gold and silver contents of these alloys made it difficult to determine the value of each currency. So the foreign trade was hampered at the time. Pure silver coins were introduced in 570 BC, but the new silver coins did not completely replace Electrum.

Metals used in coin mint :

Each country put some different trends in the manufacture of its own currency, but coins are generally made from alloys, and since these currencies are intended for long-term use, the metals must be corrosion resistant, some problems may occur if the value of the metal used in the manufacture of the currency is greater than its nominal value; Because metal smelters and resale return coins to metal again to buy it. A combination of metals in coins such as copper and nickel, which may later be painted in silver was highly resistant to corrosion and excellent characteristics of the coin .

Current currency industry base:

The coins are now made more often with copper, nickel, zinc and the bulk of the components are copper metal, yet some countries still prefer to use iron, carbon, tin, and aluminum as metals in their coins, and some countries use pure gold in their coins, especially in special and commemorative occasions, for being an antique currency. With technological development, however, the computer has become the one to do the job. Once the appropriate design is chosen, it is modeled with clay roughly 4 or 5 times larger than the size of the coins. Thousands of coins will be made in a short time, then those coins will be refined inside the ovens, then another stage will be washed and dried, and the coins will be polished and refined, and eventually, the currency will be confirmed to be good and free of impurities, thus becoming ready for exchange .

The exchange process shall be conducted according to the following stages:

When a new coin is to be manufactured, the appropriate metal will be selected the design, then the sculptor will manufacture a clay model that may be several times larger than the base coin's size so that he can see the full details in it, and then make an inverted plaster model. "Gypsum," by pouring the gypsum over the clay model, then making a rubber mold of strong, solid epoxy in that coin's gypsum, and then installing the mold on the drill machine to convey the design, and one end of that machine contains a fine, fine needle that tracks the design on the epoxy mold.

2. The thermally treated metal is placed in a machine to be molded and refined to match the blank configuration molds (Blank die). Then the mold is clamped to make the basic mesh in the master die configuration process, which is used in the other stages, and then it will be retained.

The original currency will be in a safe places.

A specific machine slices the metal panels into circular pieces so that their size and thickness are proportional to the required coin, and then they are exposed to some acid, washed and dried to eliminate oxidizing agents from different manufacturing phases.

The impact of technology in design and implementation:

Nowadays, programs such as 3D MAX are used in the design and execution of different currencies. "Laser" that is used in the currency industry with which we can engrave on metal at high speed without any error. Using software gives us more opportunities to make modifications and make different designs without wasting time. It gives us the same sense as brushes and pens. It also enables us to (approximate) the design to see details more closely which helps us to make adjustments easier, faster and more accurate. Laser makes a micro mark that appears only under specialized devices to Prevent Falsifying.

Summary:

The use of modern technology and keeping up with the times is important in all areas, especially That's relevant to national security and the economy. Currency is one of the basics of life and physical dealings between individuals, institutions and states. Indeed, over the ages, many people have tried to unify different currency designs, tried to experiment with a lot of metal and made simple designs, in the first place, through complex designs.

Recommendations:

The Arab Library needs more research to learn about the old ways , how the coin in mint and the possibilities used through in many steps. Standing on the old foundation always helps us to look for new methods of development in all era, and how different designs are being excavated, modern technologies are being exploited, and to keep up with the modern age, to always look for everything that is new that helps humanity and saves time and effort for the designer at the same time.

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