

Design Resource

## Flexible Brass Fish Craft - Ganjam, Orissa

Brass Artifact

by

Prof. Bibhudutta Baral and Bhargava A. J.  
NID, Bengaluru

Source:

<http://www.dsource.in/resource/flexible-brass-fish-craft-ganjam-orissa>



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## Introduction

The flexible brass fish of Odisha is a very ancient craft form which dates back up to 9th century AD during the rule of the Bhanja Kings but mainly received recognition during 1658 AD to 1707 AD which is around 300 years ago. It is said to have originated in the area of Bellaguntha and is believed that a person named Gangadhar Maharana was the first person who started the making of this art form.

Although in today's world they are only used as decorative pieces, in the past it was considered the symbol of the Vishnu's matsya avatar and was also considered to be a symbol of peace. During marriages traditionally the girl would be sent with a wooden box, which would include sindoor, kohl (kajal), money and this flexible brass fish, as it is a symbol of peace.

The main attraction of these artifacts is the life like smooth movement. When this craft was first started fishes were the only products that were being created, in today's market you can find other creatures like prawns, snakes and tortoises. Although some of these artifacts do not have any moving parts they are still very beautiful to look at. Artifacts like the snake and the fish are the oldest once to be recorded prawns, turtles and birds all came into existence much later.

Earlier wooden flexible fishes were also very famous. As they are much more harder to make and preserve the brass once completely replaced the wooden once. In today's market it is almost impossible to find wooden flexible fish, as there are very few artisans who still actually make them. Although the process of making them varies quiet a bit the end product is still just as appealing. The wooden once are comparatively more delicate.

The entire brass artifact is made out of brass and other metals to an extent where even the sticking of the two pieces of the metal is done using a metal of a lower melting point. Brass sheets are used to make the majority of the artifact and brass wire is used to make parts like whiskers and legs. The eyes are the only parts for which very shiny red stones are used to give it a beautiful contrast. These artifacts become more flexible with time and use.

The entire artifact is split into mainly 3 parts i.e, head, torso & the tail. The head being the main part it is created first. The dimensions of the other parts that follow are all measured with the head as a reference. The face is a cone shaped brass piece with holes for fins and bulges for eyeholes. The mouth is shaped into the head and a rim is created. As a general idea about 4 parts are used per inch of the fish. Scales are shaped on to the segments of the torso. The tail is the last piece to be made and the measurement is taken according to the smallest segment of the torso. The tail is made of two separate pieces, which are mirror images of each other. They are made separately and welded together.

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Among all the products that are being made the flexible brass snake is the one, which is the most expensive because, a lot more material is required to make it and a lot more time is consumed in the process of making it. The flexible fishes are the once in most demand as they are very iconic and the flexible snake is second most highest in demand as a lot of temples of lord Shiva as well as a lot of devotees to lord Shiva keep buying them.

These artifacts are all always created upon receiving orders. In most cases new ones are only made when somebody orders them. These flexible fishes are not just famous in India but also have recognition in many western and European countries.

Sadly though the number of people making these flexible brass fish keep on depleting. As there isn't much of a demand for this in the market mainly because people don't know about the craft form the demand is very less. The artisans who still make these artifacts work other jobs as well to earn a proper living. A lot of these artisans have received many awards from local, state as well as national levels.



Fish made of metal.



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Front view of the fish.



Unique fish that is made of brass.



Artist who manufactures the brass fishes and other metal artifacts.

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Glimpse of variety of fishes that are getting manufactured at Odisha.

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## Tools and Raw Materials

Many different tools are used in the making of these flexible fishes:

- **Hammer:** It is mainly used to beat the brass sheets into the required shapes.
- **Long Metal Rod of Known Radius:** The metal rod has a conical tip. The rod is mainly used as a reference while creating the different parts of the fish. The tip is used to create the head of the fish and the rest is used to create the segments for the body.
- **Drilling Machine:** A hand powered drilling machine is used to create holes wherever required. A hand powered one is preferred over a electric powered one as these artifacts are quiet delicate and will get damaged easily.
- **Forceps:** They are used to lift the parts of the artifact from the furnace.
- **Hacksaw:** It is used to cut.
- **Furness:** The furnace is used while sticking the joints with the help of a zinc and tin alloy.
- **Hand Powered Air Blower:** It is used to blow air into the furnace to provide oxygen.
- **Divider:** The divider is used for accurate measurements before cutting the brass sheet, as all the segments have to be of equal length.
- **Scissors:** It is used to cut the brass sheets as well as brass wire.
- **Chisel:** It is used in the shaping of the edge of all the individual segments.

As for the raw materials:

- **Brass Sheets:** This is the main raw material as all the separate segments and parts of the fish are made with small strips of the brass sheet.
- **Brass Wire:** The wire is mainly used while connecting the segments of the fish together.
- **Mixture of Tin and Zinc:** This alloy (Alloy: Homogeneous mixture of two or more metals) is used to stick the pieces of brass together as it has a lower melting point than brass.

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Hammers used for leveling the metal sheets.



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Cutters used for cutting the metal sheet.



Hacksaw tool used for cutting the metal.



Chisel used in shaping the metal strips as per the requirement.



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Metal scissor used for cutting the excess of metal.



Metal holder and a pointed metal tool used while manufacturing the brass fish.



Customized tools.



Charcoal is used in furnace to heat the metal sheet.

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Sheet of brass metal.



Tool that is used for piercing to make holes.



Holder in which the metal sheet is placed in it to file.



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## Making Process

Although the final product might be a fish or a prawn the process in which it is made is the same.

- To begin with first all the calculations are made according to the required size eg: for a 10cm fish 2.5cm is the head and 2.5 cm tail fin so the body would be 5cm. For each inch of the fish 4 body segments are required for smooth flowing movement. So for a body, which is 5cm, it would require 8 segments.
- The brass sheet is then cut into smaller pieces of required length and breadth. This is done very precisely using a divider.
- These pieces are then given a zig-zag or a wavy pattern to represent the scales of the fish. This is done for every segment of the fish using a chisel and a hammer.
- A piece of the brass sheet is made into a conical shape to make the head of the fish. This is done with the help of a metal rod, which is used as a mold on which the brass sheet is beaten.
- The segments of the body are all beaten on the metal rod until they turn into a circle of required size. Each segment is slightly smaller than the one in front of it so that it fits properly and flexes.
- At the end of these brass strips a small paste of the alloy of zinc and tin is applied.
- The rings are then heated in the furnace and the rapidly cooled by dropping them in cold water. As the alloy of zinc and tin has a lower melting point it melts sooner and then fuses back together when cooled. This makes the two ends join perfectly.
- The first segment of the body is placed right behind the head and aligned properly and a hole is made through both the body segment as well as the head of the fish, on the top as well as the bottom.
- Brass wire is then passed through the holes and is then used to tie the pieces together.
- Holes are then punched on all the other segments including the tail and the brass wire is used tie them together.
- Brass sheet is used to make cut outs of the shape of the fin.
- The sheets are then beaten into proper curves of required depth.

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- Designs are then embossed onto the brass sheets.
- The two pieces are then welded together.
- Flat brass sheets are bent in a zig-zag pattern and cut in a curved shape to create all the fins.
- Holes are drilled at specific places wherever required and the fins are attached.
- To give the finishing touch the red eyes are added to the fish. In the case of the prawn brass wire of varying thickness is used to create its whiskers as well as the legs.



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Brass sheet is marked according to the requirement and it is cut.



Metal strip is leveled by pressing it with hammer.



The metal strip is further cut into small bits as per the required breadth.



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Small metal bits are designed at the border-using chisel.



A glimpse of different sizes of metal bits that are cut according to the design.



These brass bits are heated in the furnace.



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Once they are cooled they are rolled to form a circular form.



Binding agent is applied to seal the end, to form a circle.



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Using the metal holder, it is taken out from the furnace.



Binding agent is applied to seal the end, to form a circle.



And dipped in water and allowed it to cool completely.



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Using the customized tool and hammer, the shape of the circular metal is further checked and a perfect shape is rendered.

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Various sizes of these circular forms and the other parts of fish are made.



Circular forms are pierced through a sharp edged tool.



Excess of metal is precisely cut.



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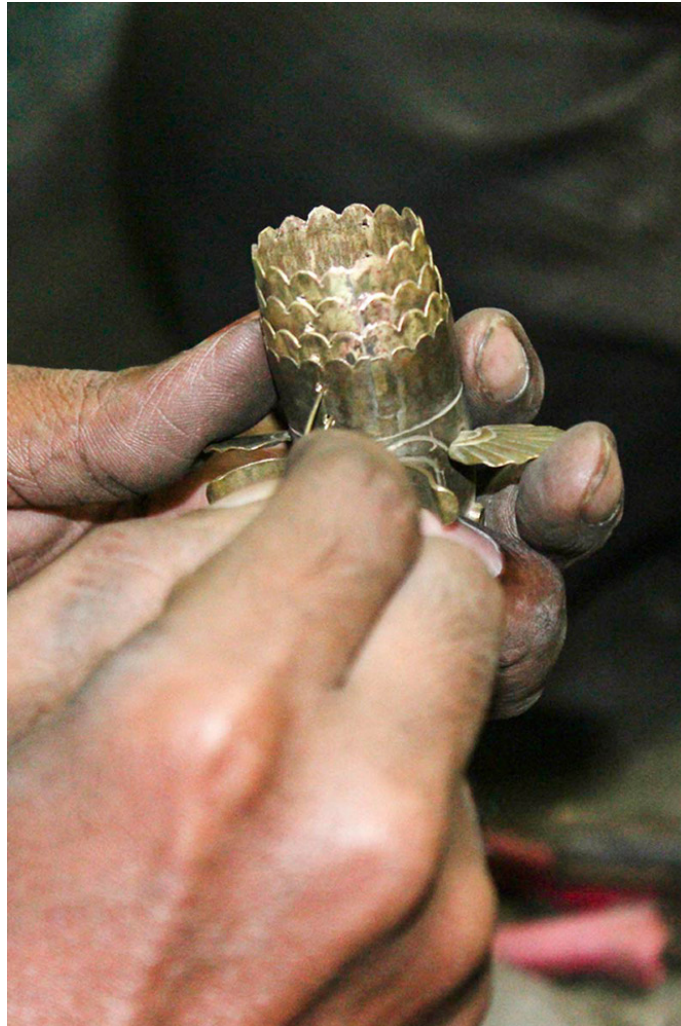
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All these circular forms are fixed to each other to form 'scales' of the fish body.



Metal wire is inserted through the holes.



The metal parts of the fish scales are tied by this metal wire.

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Close up of the fish that is being manufactured.



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All the parts of the fish like fins, face, scales and gills are completely attached and the final product is manufactured.

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## Products

Many different products are made using the same principle. Creatures like prawns, and fishes are made so that they flex. The sizes of these products vary from order to order. In some cases the artifact may just be around 10cm and in some cases they may be 30cm long or even bigger.

Other artifacts that are made which do not bend include animals like ducks, swans, tortoise etc. these are all used as decorative and show pieces used as home décor. Their sizes range from small 3cm products to much larger artifacts at around 30cm and in some cases even bigger.

As most of these artifacts are made based on orders the sizes and the specifications of the appearance are based on the requirements of the customer. These products being completely hand crafted, all the artifacts are unique and can cost upwards of Rs300/-. Depending on the level of detail and the size of the product it can cost a lot more. The smaller artifacts, which are around 10cm in length come in the range of INR400 – INR600.

In some cases an entire fish tank setup is created along with colorful lighting, which will include many different artifacts like a few fishes of different sizes, prawns, birds like cranes and ducks, tortoises etc. All these artifacts are neatly displayed in a glass box with decorative lighting and plastic grass.



Flexible brass fish.



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Crane birds made of brass.



Aquarium in which the brass fishes, turtles and cranes are all displayed.



Aquarium in which the brass fishes, turtles and cranes are all displayed.



Another variety of fish made of brass.

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Close up of the sea creature made of metal.



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## Video



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## Contact Details

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