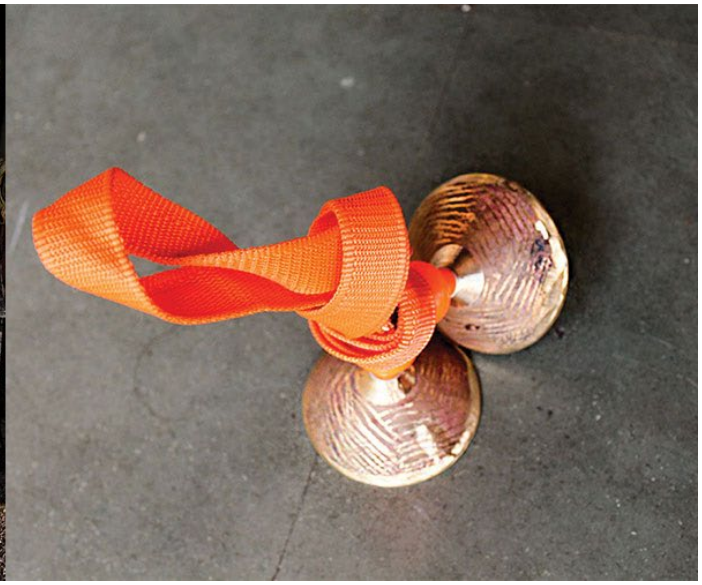
Design Resource

Taal Making - Ahmednagar, Maharashtra

Musical Instrument Making
by
Prof. Bibhudutta Baral and Srikanth B.
NID Campus, Bengaluru



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Introduction

Taal (cymbal) is a traditional musical instrument made from metal, mainly copper. This instrument originated in India is a usual accompaniment for devotional performances and music. Its ease of usability and inexpensive owning make it a favorite among experts as well as amateur musicians. Its age-old application can still be found in temple paintings and sculptures, where musicians are shown playing it for deities or royal heads as an offering. Taals are known in different names across different parts of the country and hold strong cultural importance, especially in Gujarat and Maharashtra. Here Taals are played during aartis, bhajans, dayro, and santvani.

Taal, made up of two copper plates called cymbals, holds a depression in the middle and a protrusion to the exterior side. This protrusion allows it to be played with fingers. While using it, the player holds the Taal with both hands and strikes it together or one over the other to produce a tinkling sound. The cymbals are also tied together with a crude copper cord or a simple string for extra grip while playing. This perfectly tuned handmade instrument is a masterpiece of skilled artisans who design by casting method or by beating the metal into the required shape. The latter is a pretty primitive style, while casting is the one that is widely practiced nowadays. The product is often regarded for its high durability and earth-friendly nature. Artisan Mr. Shubham from Ahmednagar, part of Maharashtra, has been making high-quality cast Taal for years. The skill that was passed to him from his father is now shared with his students and employees to preserve the craft for centuries.

Shri Sainath Gangadhar Dudhale, a place where pure metal Taals and other items are manufactured.

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An exterior view of the shop cum workshop.

Mr. Shubham Sainath Dhudhale, the proprietor of the shop.

Craftsman checking the quality of bronze used for a standard product.

The workspace where the cymbals are manufactured.

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A dedicated artisan working on the sound quality of the instrument.

The look of a finished bronze cymbal.

A group of artisans working at Shri Sainath Gangadhar Dudhale workshop.

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Tools and Raw Materials

The tools and raw materials that are used for Taal Making are as follows:

- **Copper Wire:** It is the main raw material melted and poured into the mold to achieve a particular shape.
- **Sieve:** It is used to separate bigger grains and attain fine soil used in the making.
- **Pattern:** Pattern is the model of intended casting, made in brass metal.
- **Tar and Mud Powder Mixture:** It is used for mold making.
- **Wheat Powder:** It is used to prevent the molten metal from sticking to the brass pattern used.
- **Furnace:** It is the heater in which the metals are melted.
- **Crucible:** It is a container used to pour the molten metal.
- **Pincers:** It holds the crucibles.
- **Box Flask:** It is a tool used to hold a mold in a casting.
- **Flies:** It is used to remove fine amounts of material from the workpiece.
- **Grinder:** It is a tool used for metal polishing.
- **Lathe:** It is a tool that keeps the workpiece in a rotational motion to perform filing.
- **Big Nail:** It is used to attach the cotton strap to the plate.
- **Plier:** It is used to bend the nail into a hook shape.
- **Cotton Strap:** It is used to hold the instrument.

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A fire pit that burns at around 1200°C temperature to melt bronze pieces.

Bronze pieces and Copper wires are the main raw materials to make cymbals.

Crucible of clay in which bronze pieces are placed before exposed to fire.

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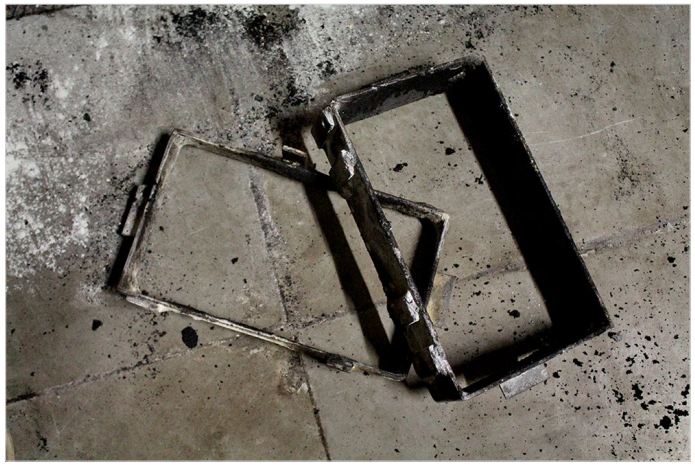
A weighing machine is used to check the weight of bronze pieces and wires.



Iron molds used for casting the cymbals.

Black sand, a mixture of bituminous powder and sharp sand that is stuffed inside the iron mold after filtration.

Wheat flour used to apply on the black sand mold to free the casting easily from the sand.

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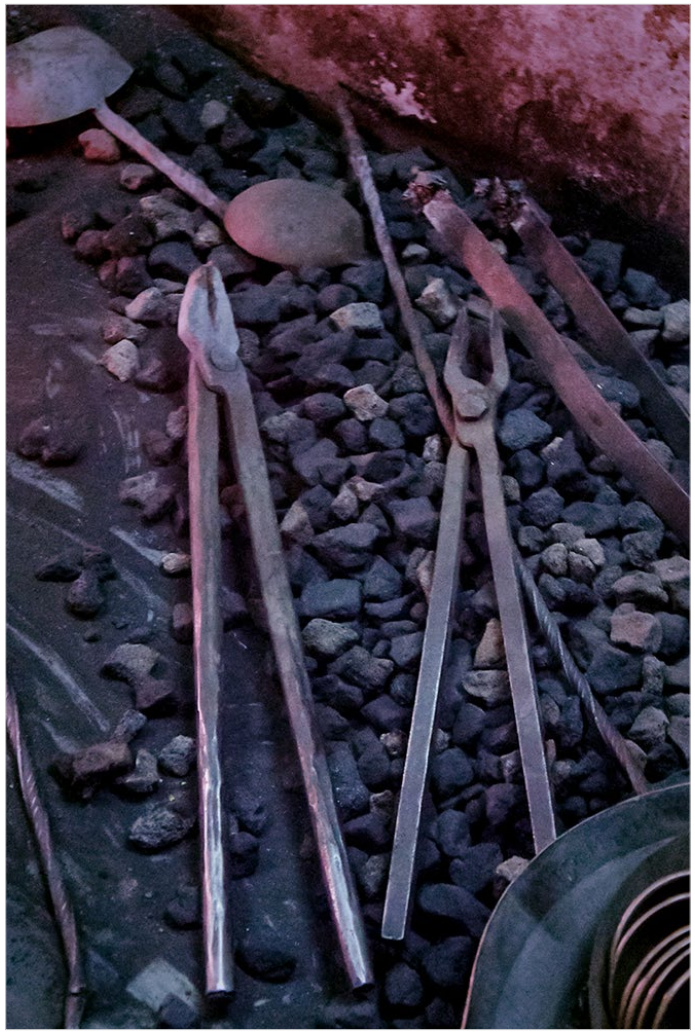
Water is used to cool the hot cymbals after casting and chemicals to produce a long-lasting sound quality.

A small chisel was used to make an opening in the mold to pour the bronze liquid.



A holder used to pick hot crucible filled with bronze liquid, from the fire pit.

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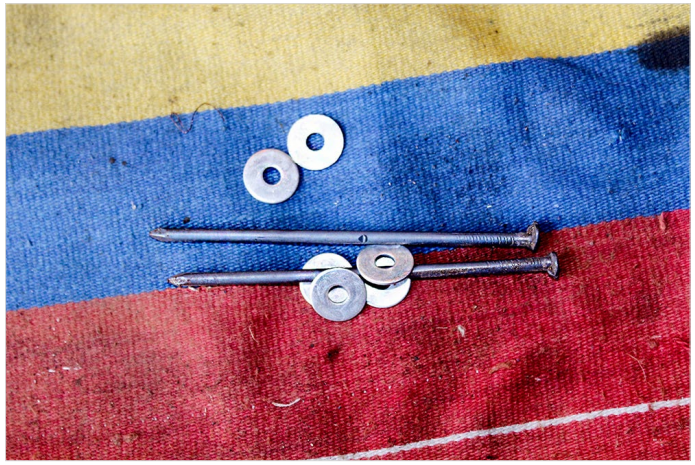
A handle fixed at the top of cymbals for a strong grip while playing.

A rectangle file is used to smoothen the outer surface of the cymbal.



Iron nails are used to support the handle for the cymbals.

A cutting plier used to bend iron nails as per the required shape.

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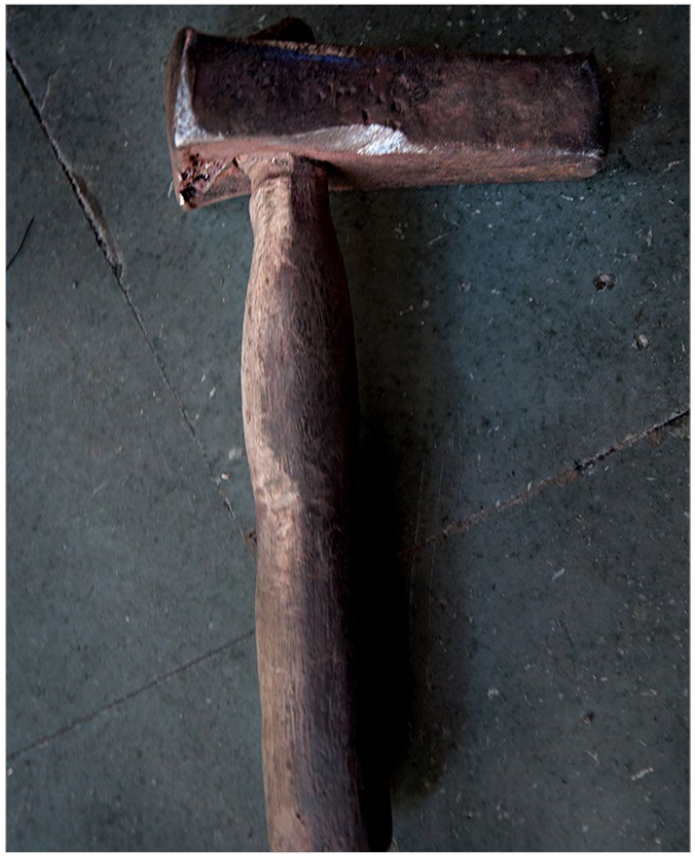
Lathe turner to grind the raw cymbal to have a shiny surface.



Stone sledgehammer to support the cymbal while smoothing it in a lathe turner.

File scraper used to scrape out roughness from the cymbals.

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Making Process

A Taal making is put through a sand casting method performed to solidify metal into a particular shape. Firstly a box flask is used to make a mold of Taal shape. Here the box flask is a rectangular structure with only frames and no top or bottom, made up of two parts: a cope and a drag. Placing the drag on the board, the wheat powder is sprinkled over to establish a non-sticky layer. Sand is then filled into the pattern and drag, packing them completely, followed by proper hitting with hand hammers. To have an opening for pouring molten metal, holes are created at this stage in the drag to the full depth of the drag as well as the flask. The finished drag flask is now rolled over to the bottom board exposing the pattern. Again wheat flour is sprinkled all over them. The same steps are followed for cope similarly and once done the pattern is removed from the freshly designed cope and drag. Likewise, many molds are made ready and assembled for large-scale production. Once the mold is ready, metal pieces and wires are placed into a crucible in a burning furnace to melt it at high temperatures. Next, this molten metal in the crucible is carried towards the mold with the help of tongs and poured through the feed hole. After the substance cools and solidifies, its casting is separated from the mold and dipped into the water. A pair of casted shapes is then tied with a cotton strap with the help of a big nail to make a handle for the Taal.

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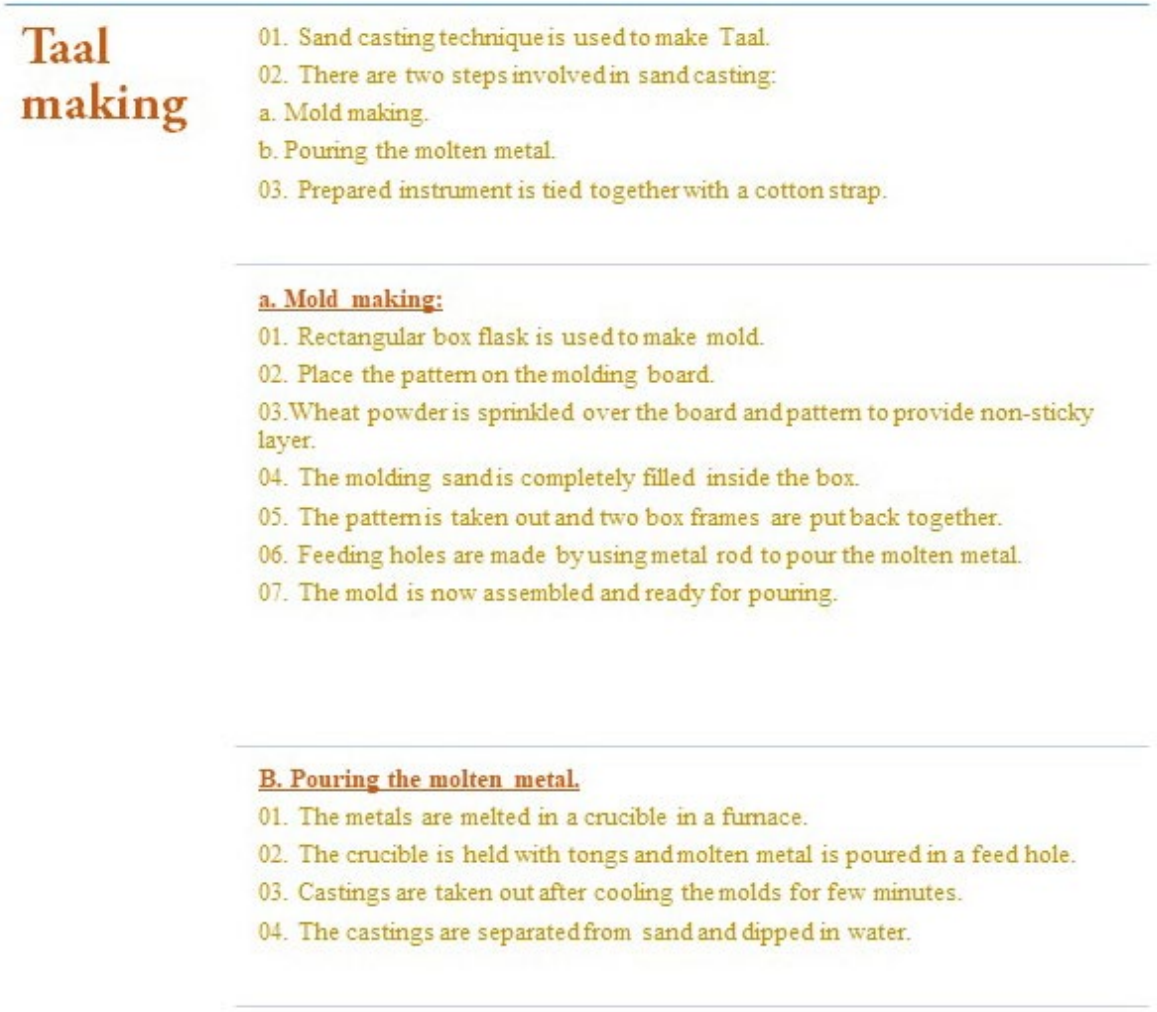
Flowchart:



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Artisan placing crucible inside the fire pit.

Old bronze wires and pieces being dropped inside the crucible for melting.

A bronze plate covers the top of the crucible placed over the fire pit to absorb more heat.

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Artisan filtering the hard particles of bituminous powder and sharp sand together using a sieve.

The mixed black sand being dropped from a polymer bag onto the floor.

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Artisan placing a piece of wood on the floor.

The cymbals are kept over the wood piece and wheat flour is sprinkled all over it.

The first layer mold being fixed on the cymbals and wood piece.

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The black sand is stuffed inside this mold.

Artisan sprinkling wheat flour on the top surface of the stuffed mold.

Artisan after placing a plastic cover on the stuffed mold stands on them to ensure a tightly filled black sand.

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The mold is flipped upside down to check the front part of the cymbals.

The bronze cymbals are removed from the mold and the mold is then sprinkled with flour.

Artisan making a hole in the mold using a small chisel.

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On the second layer mold, the backside of the cymbals is printed.

Artisan filling the black sand on to the second layer mold.

Artisan using a steel spoon to make a hole in the second layer mold.

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The artisan checks the perfection of the action after attaching two layers of the mold.

Multiple molds being arranged in a row.

Artisan raising a crucible filled with molten bronze from the fire pit using an iron holder.

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The molten bronze is poured into the mold through a hole on it.

The solidified bronze cymbals are removed from the molds once cool.

The mold is left for cooling after the molten bronze is filled in.

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Artisan dipping the cymbals into the water first to make it cold and then into a specific chemical for good quality sound.

The bronze cymbals castings are again kept aside to bring it to room temperature.

The cymbals are placed to dry.

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Cymbal being fixed on a lathe turner.

Artisan grinding the raw cymbals with power sander for smoother surfaces.

A rectangle file is used to smoothen the front part of the cymbal.

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Artisan scraping certain unwanted areas of cymbal using a file scraper.

Scraping is done to the topmost part of the cymbal as well.

Artisan fixing iron nails to the holes made on cymbals.

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A holder is fixed on the nail fixed on the top of the cymbal.

Artisan bending the sharp edge of the nail into a circular shape using a cutting plier.

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A strap being fixed into the circular-shaped nail and tightening them without leaving a gap.

A glimpse of the completed piece of captivating cymbals.

A single strap is fixed to the pair of cymbals.

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Products

The following are the types of Taal made at Sri Sainath Gangadhar Dudhale, divided as per their size, weight, and appearance.

1. **Bortaal:** The biggest on the list, which weighs around 1 -2 kg.

2. **Majutaal:** It is a medium-sized clash cymbal.

3. **Manjira:** This type is the smallest that is mostly used in the traditional folk music of India. It plays an important part in classical music designed for dance forms like Bharat Natyam, Kuchipudi, Manipuri, Mohiniattam, Andhra Natyam, and Kathakali. It is known in different names like Tala, Talam, and Jalra in different parts of the country.

4. **Ramtaal:** Ramtaal is a form of the musical instrument where multiple pairs of cymbals are incorporated into two wooden handles, famously known as Karatal or Khoritaal in the northeastern part of the country.

The price of the products finished at the workshop depends mainly on their size and weight. Here smaller size Taal of approximately 500 gm cost INR 500, medium of 600gms set at INR 600 to 650 while the larger size is sold at INR 700 to 750, which usually weighs around 700gms or more.

'Shri Sainath Gangadhar Dudhale', an Ahmednagar-based shop prominent for their range of bronze casting products.

Medium-sized cymbals being exhibited in the shop outlet.

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Video

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Contact Details

This documentation was done by Prof. Bibhudutta Baral and Srikanth B. at NID, Bengaluru.

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