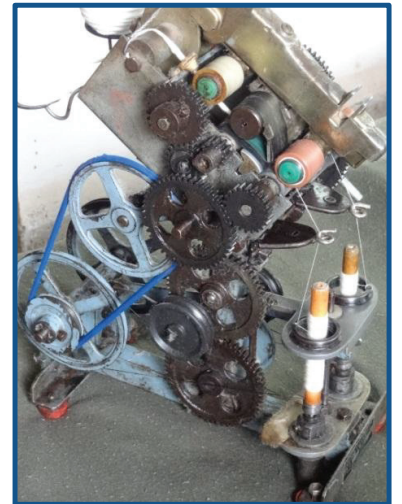
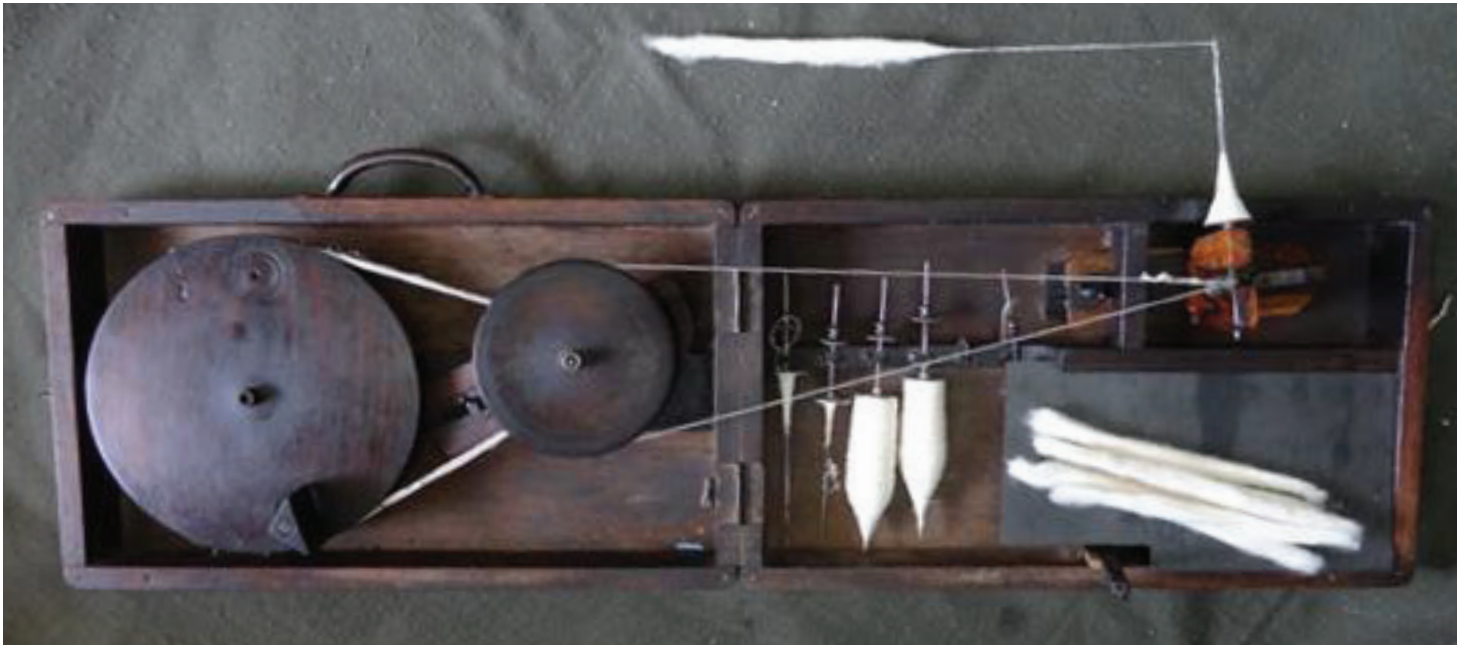


Box Charkha Manual

By



Art of Spinning



2 October 2013

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The firm belief and commitment to Gandhian thoughts by Shri. Vasantrao Palshikar, Shri. Sadashivrao (Dada) Bhosale and Shri. Shivaji Kaganikar has always been my inspiration.

Khadi is not merely a cloth. It is a way of life in which all aspects of Nature-friendly life are embedded. It welcomes and celebrates the productive participation by one and all. Everyday every household generally cooks food for the family members and the guests, as per their needs and choices. Similarly every household can spin cotton for their clothing requirement, and a little more for the weaker and disabled persons in the family and neighborhood. One or two persons in a family can easily spin for an hour every day. This is good enough for @ 30 to 35 meters of cloth in year.

This is easily possible. Let us see ... How ?

Background

Primitive humans protected themselves from Heat , wind and cold using leaves, bark from trees and hides for covering their body. Today, we protect ourselves from cloth made of various fibers available from plants (flax, jute, cotton), from Animals (Silk, Wool) or Manmade fibers (Nylon, Rayon, polyester etc). Wool was in use since antiquity, however use of cotton in fabrics is comparatively very recent. Manmade fibers are only a century old. Before the British rule was established, India had a rich tradition of manufacture of fine cloth with exclusive designs and patterns and was a major supplier of these varieties all over the world. Widespread selfemployment was available throughout the Indian continent. Large scale industrialization in England, resulted in mass produced articles including mill cloth. England needed a market for these articles. Those Days Indian villages were almost self sufficient with the help of local industries, for their day to day needs. Unless these cottage industries were dismantled British Goods could not enter the Indian market. British rulers ruthlessly destroyed the village industries, particularly cotton processing industry. Villagers lost their means of survival as there was no trade available to augment the agricultural income. Most of the people were pushed to acute poverty, unemployment and severe hunger. Unless every able hand is provided with productive work, common man cannot survive. It was in 1920, that Mahatma Gandhi rightly diagnosed the situation in India. Considering the proportion of the imported cotton fabric from England to total imports to India, it became very clear to him that rejuvenation of the distributed village Cotton processing Industry is the only way out from this pathetic situation. He strived to re-introduce and establish on priority, the spinning, weaving and other related activities in villages to empower the villagers themselves. Today, particularly the city life, is very much energy intensive. We deploy all forms of energy to replace human or animal muscle power. The limited quantum of external forms of energy are being consumed more and more exponentially. Unless we address this issue by reducing our external energy requirement in day to day life style, the future will be darker. Promoting less energy intensive local industries by using the locally produced products and services is one of the major strategies to be adopted now and here. It is we, city dwellers, need to be the agents of change. We should stop looking at villages as merely a source of raw material , cheap labour and a market for factory produced goods. Instead we should be the market for the products and services from the village industries. Khadi and Village industries is one such initiative. Clothing being one of our primary requirements, Khadi takes the center stage. Thus to promote khadi the old designs for the spinning gadgets were modified to accelerate the production of handspun yarn, which resulted in present day's models of Box Charakhaa and Ambar Charakhaa.

Following models of Charakhaa are in use these days

For personal use (*Self sufficiency in clothing requirement*)

1. Box Charakhaa (पेटी चरखा)
2. Traveler's Charakhaa (प्रवासी चरखा)
3. Book Charakhaa (पुस्तक चरखा)
4. Ambar Charakhaa (अंबर चरखा) with 2 spindles

For Employment

5. Ambar Charakhaa with 4, 6, 8 or 10 spindles (Manual)
6. Ambar Charakhaa with 4, 6, 8 or 10 spindles (Solar Powered)

Major Processes in making a cloth

1. Growing Cotton
2. Harvesting ripped cotton boles
3. Cleaning and opening the cotton boles
4. Ginning (Removing the cotton Seeds)
5. Carding
6. Making Slivers (for Box Charakhaa) or Rovings (for Ambar Charakhaa)
7. Spinning and making Hanks
8. Processing the Yarn (unwinding, washing, boiling to remove traces of Oil, Dyeing, preparing Bobbins)
9. Preparing Weft (lengthwise arrangement)
10. Weaving
11. Washing, bleaching, Starch, pressing,



1. Full grown Cotton variety



2. Long staple Cotton G arboretum.
One bole weights at 7-8 grams



3. fibers in use in past 5000 years.
Flax (Egypt and South Europe),
wool (V West Asia and Northern Europe),
Silk (China), Cotton (India)



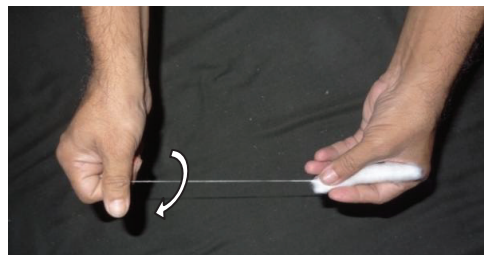
4. Ginning by hand



5. Carding using
a bamboo Bow



6. Preparing sliver, Pooni
(पेळू) for use in box Charakhaa



7. Making Yarn by Hand



8. Spinning using Drop
Spindle (टकळी)



9. Students and Teachers participate in spinning and
weaving activities at Anand Niketan school in Sevagram, Wardha.

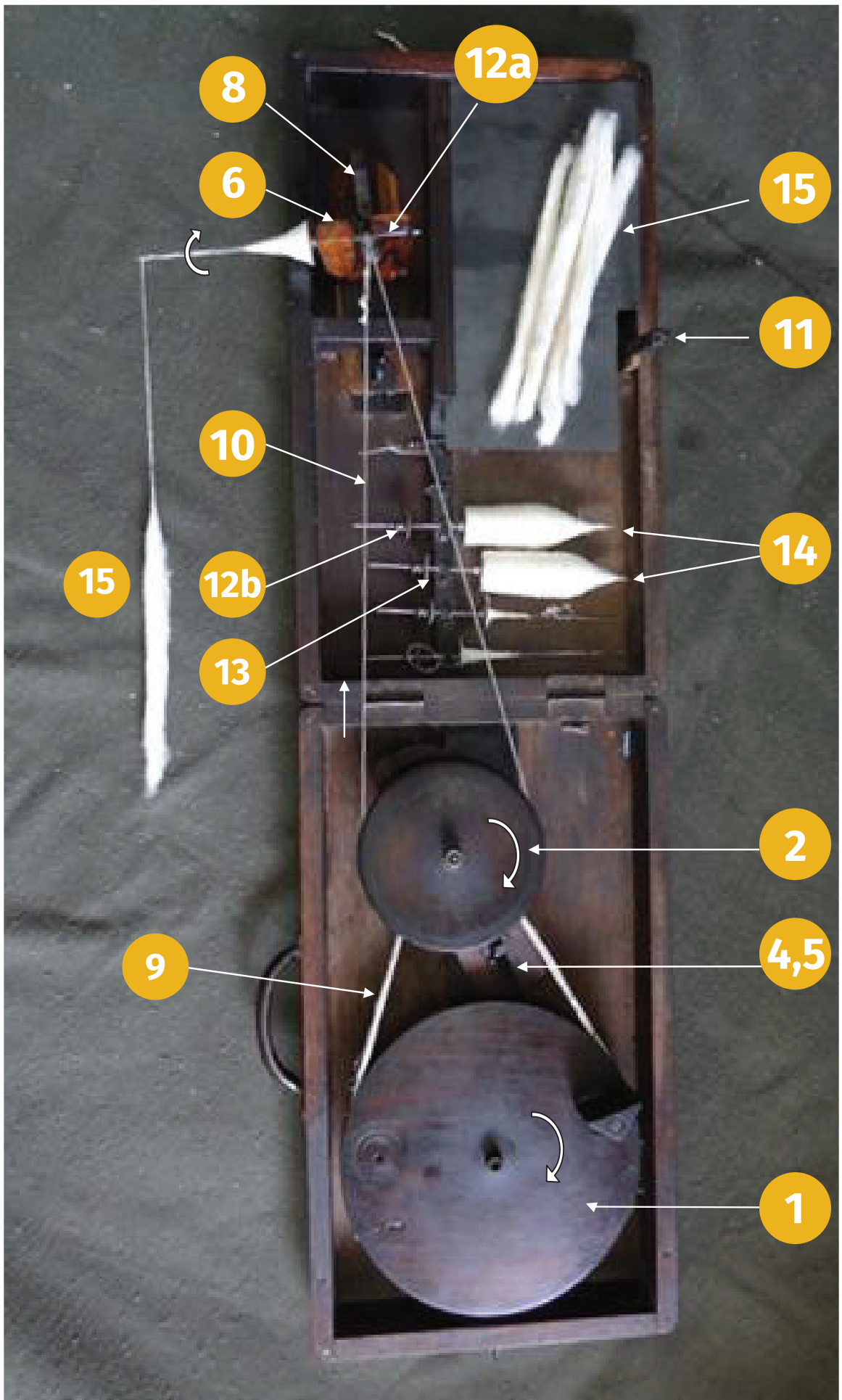


Table showing Major parts of Box Charakhaa

Sr. No.	मराठी	English	Remarks
1	मूळ चक्र	Main Wheel, with handle	8" ,
2	गती चक्र	Accelerator Wheel	5 "
3	फाळका	Winder	14"
4	स्लाईड (स्प्रिंग सह)	Slide, with spring	
5	फ्लाय नट	Fly-nut	
6	मोढीया	Stand	
7	वादी	Bearing String, Strip	Cotton , Plastic
8	मोढीया खुंटी	Stopper	
9	मोठी माळ	Thick Belt	
10	छोटी माळ	Thin Belt	
11	सूतखुंटी हूक सह	Arm, with Hook	
12	त्राक (a), पूली (b) सह	Spindle(a), with Pulley (b)	7"
13	चामड्याची चकती	Leather Washer	
14	योग्य आकारात सूत गुंडाळलेली त्राक	Yarn Properly wound	
15	पेळू	Sliver	
16	गुंडी	Hank	

You must know this.

1. Khadi means a cloth woven on Handloom using Hand –Spun Yarn. Handloom means cloth woven on Handloom using Mill-spun yarn. You can easily distinguish between Handloom and Khadi. Khadi cloth is generally much more porous. This gives Khadi a soft and well ventilated feel. The twist of the hand woven yarn is generally less than that of mill yarn. This less twist helps improve its absorption properties.
2. Yarn spun on Charakhaa has a twist in the direction of letter 'S'. If we twist the yarn in the direction of normal tightening of the right handed screw, the yarn gets more twist. (The mill yarn has an opposite twist in the direction of letter 'Z').
3. The quality of yarn depends on the strength, twist and the uniformity of the yarn.
4. All varieties of the yarn with uniform twist and the thickness is useful. Thicker yarn can be woven into towels, curtain cloths, mattings etc.
5. A bundle of 1000 m of yarn is called as hank. The number of hanks in 1 kg of yarn is called as the count of the yarn. Yarn of 30 to 50 counts is commonly spun on Box Charakhaa. This range of yarn is required for most of the day to day requirements of cloths. Sari is made from finer yarn @ 80 to 100 counts. Still finer yarn of count 120 or more is used in making Muslin.

Before starting spinning on Box Charakhaa

- 1.** Thin Belt should be thin and non elastic as far as possible. Knot should be as small as possible. This improves the life of the belt and smooth running of the spindle. Applying Bee-wax to the thin Belt will enhance the life and the grip considerably.
- 2.** The tension on the thick and Thin belts should be proper. The wheel should rotate freely without transferring force to the box and without slipping over the pulley.
- 3.** Oil the axles of both the wooden wheels as well as the bearing pads for the spindle in stand and the leather washer. Mixture of Coconut oil and kerosene is the best. It does not solidify in winter and is sufficiently thin.
- 4.** In place of cotton string used as bearing pads Plastic strap (generally used as box packing strap) can be used at advantage. It lasts for years with reduction in friction and Noise .
- 5.** The Leather washer on the spindle should be placed between the pulley and the wooden portion of the stand, to act as a bearing while the spindle rotates. This prevents friction between pulley and the wood.
- 6.** The angle of the stand should be adjusted to ensure that the pulley on spindle , while rotating in forward direction just touches to the leather washer and while in reverse direction the pulley moves little away from the leather washer.
- 7.** The aluminum disk on the spindle should be fixed using yarn soaked in gum and wound on either sides of the disk. The disk should rotate in a plane perpendicular to the axis of the spindle. Please note do not forget to insert leather washer in-between the disk and the pulley, with hard surface towards the pulley, before fixing the pulley.
- 8.** The spindle should rotate without any vibration. Some inherent noise will be there, however it should be minimal. Proper oiling will substantially reduce the noise . If the noise and vibrations still persist, the spindle should be replaced. Straightening of the spindle is a specialists job.
- 9.** Please ensure that the pointed end of the spindle is well above the ground matt, otherwise the yarn may get entangled in the ground sheet frequently.
- 10.** When rotating the main wheel in Clockwise direction when seen from Top the spindle should rotate in anticlockwise direction when seen from the spindle pointed end.
- 11.** Ensure proper tension on either belts.
- 12.** While spinning, the spindle stand should be vertical or slightly tilted away from the spinner.
- 13.** The stopper for the Stand should always be applied. While spinning, the stand should not touch the stopper. The stopper arrests the flying of the rotating spindle in case the thin belt snaps while in operation.
- 14.** Ensure that there is no unwanted rubbing / friction, fouling of any of the parts when the mechanism is rotated in forward and reverse direction.
- 15.** It is better to spread a black or any dark colored plain bed sheet on a floor matt. The light should preferably from behind- right. Fresh air is desirable however Fan scatters the loose cotton fibers all over and snaps the drafted yarn frequently.

While you spin

1. Practicing the spinning by hand or with Drop Spindle will ensure that you understand the yarn formation process thoroughly. With box Charakhaa, this very process is accelerated.
2. It is important to draft the yarn with continuous, uniformly thick and uniformly twisted yarn. It is equally important to wind the yarn on the spindle.
3. Do not wind the yarn beyond the diameter of the metal disk. Yarn should be wound tightly in the conical shape. Never wind the yarn up to the tip of the spindle. Leave 20 to 25 mm from the spindle tip. Otherwise it may damage the entire stock on the spindle while unwinding and transferring to the winder for making Hank.
4. It is important to draft the yarn without snapping it. joining the yarn takes maximum of the time.
5. The angle of the spindle with the ground should preferably be @ 35 Degrees. This makes it most convenient as you do not have to lift the hand excessively for winding the yarn on the spindle. This angle can be adjusted by lifting the far side of the box by inserting a roll of a bed sheet below the box longitudinally.
6. While trying to improve on speed in spinning it is important to have a uniform twist and thickness as well as the movements while drafting and winding need to be well synchronized.

Describing this process is like explaining the sweetness of the sugar. The real enjoyment is in tasting the sugar. Similarly real enjoyment is in spinning the yarn. With little determination from within and some patience one can very easily produce yarn enough for his / her family. The minor difficulties get resolved with closer observation and little commonsense applied to it. If the activity can be arranged in a group, the progress is exponential, as everybody benefits by observing others and improving on our operations.

So try it ! Wish you all the success ! Happy Spinning !!!

If you still need more information please write to us. We will be happy to support you. You can contact us in case you need support for the training in spinning, repairs of charakhaas etc. You are most welcome to visit Gram Seva Mandal, Gopuri, Wardha. Here you will find entire cotton processing , spinning and weaving activities. Exclusive varieties of khadi and article manufactured in local village industries are also for sale at the khadi shops in Gopuri . In addition there is a workshop for manufacture of all varieties of Charakhaas and other cotton processing equipments. There is an oil extraction unit and a Cow farm also.

this booklet should serve to enhance their confidence and commitment towards this all encompassing art of spinning which is a nonviolent and eco-friendly way of life.

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