MANVPROPRIA

FOUNTAIN PENS MADE IN SWITZERLAND

Beyond Handwork

URUSHI - LACQUER TREASURES

What to know about Urushi

Urushikaki
Urushi is a secretion "Arami Urushi", obtained from the Urushi tree (Rhus Verniciflua), where the bark is cut according to certain rules and the liquid that runs out is collected "Urushikaki". A 10 years old tree yields about 150 gr of raw lacquer between May and September and is then cut down. The cleaned raw varnish "Ki Urushi" is then refined in a process called "Tenbikurome".

In this process, large wooden vats are placed at a slight angle to the sun and a portion of raw varnish is poured into them. The varnish is stirred with a wooden squeegee and squeegeed up over the bottom of the vat. In the process, the varnish becomes transparent and darker through contact with oxygen and loses water through the warm sun.

The raw lacquer is accurately weighed beforehand and should have a desired weight loss after the process. The result after the Tenbikurome is called "Sukurome Urushi" or "Kijiomi Urushi", the best quality, which can then be processed into other products, e.g. mixed with pigments. The best result is obtained in the Spring, when the power of the sun is not yet so strong.

Tenbikurome Process pictures taken on a sunny day in February 2018 with Fushimi Urushikobo

My friends in Japan and I also take it a bit to the extreme by storing the Sukurome Urushi in a glass container in the dark for years. After 3 to 5 years, various layers or sediments have formed. On top is a layer of very liquid and transparent Urushi with a very high Urushiol content. It is used only for high quality topcoats, difficult to harden but good to mix with pigments or of course perfect to use for top layer in Nuritate.

The middle segment is of good, robust quality and is used for medium layers of lacquer. It is also used to make "Shôen Neri", black lacquer pigmented with lampblack. The lowest segment also called "Haya Urushi" is very thick, dries quickly and is used exclusively for priming.

Japanese Tenbikurome urushi below has built segments after 3 years, the Chinese Urushi above has not

Nowadays Urushi can be stored for a very long time, because the varnish can be kept totally airtight. To close the containers, we use a special transparent kitchen foil called "Saran", which is mainly used for storing sushi fish. Unlike the films available here, which are not 100% airtight. Currently I am working with Urushi from 1999.

Collecting Zato to urushikaki - Zato and a lacquer craftsman

Difference Urushi from China and Japan

95% of all Urushi used in Japan is imported from China as raw lacquer and processed in Japan. Both Japanese and Chinese Urushi are comparable in quality. Urushi from China smells sour, while Japanese Urushi smells sweet and delicious.

Urushikaki, collecting urushi in Japan

The reason for this is as follows: in Japan, the urushi collector catches the leaking secretion immediately after cutting into the bark and he only collects on sunny days.

In China, the trees are cut and a shell is inserted underneath in which the secretion collects. The shells are collected in the evening. In the time between cutting and collecting, impurities and insects get into the liquid, which begins to ferment, and in China they collect even when it rains.

Collection lacquer in China with a shell

Quality
When the surface of Urushi is made of high quality, the material reaches a hardness of Mohs 4, like glass. The thinner the layers applied, the harder the final product. Over the years, the material becomes even harder. This can be seen particularly well in Urushi pens from the first half of the 20th century.

Roiro Urushi (polished Urushi).
Well done means: After grinding and fine sanding "Dôzuri" of the Urushi surface, the "Uwazuri" is started.

Transparent Urushi is applied to the finely ground surface, completely wiped off with a special paper (I personally use toilet paper) and dried or hardened for 24 hours in the "Urushiburo/Muro" humidity cabinet.

This process is carried out several times. For everyday items such as fountain pens, sword scabbards, dinner sets, etc., 6 to 8 passes are necessary. The very thin layers that are created fill the micropores left by the pre-polish and form a fine final layer that can be highly polished.

Next, the surface is polished with rapeseed oil, hands/fingers and a fine polishing powder "Migako". After polishing, the object is cleaned properly.

I personally apply two to three additional coats to further improve the polish.

Finally, the object is dry-polished to a high gloss with fingers and Mikago, without oil. For understanding, only the very thin layer built up in this working process is polished, not the underlying Urushi.

With pigmented Urushi, red "Shû" for example, the transparent Urushi additionally saturates the pigments and makes the lacquer polishable.

Mirror-polished black Roiro Lacquer

Drying/Curing problems
Urushi does not dry or cure under normal climatic conditions, but in a humidity cabinet at temperatures of +/- 25 degrees Celsius and a humidity of 65/75%.

If the humidity is too high or the lacquer layer is too thick, the lacquer will form wrinkles and must be removed completely. This effect is called "chijimu".

If the humidity is too low or the lacquer layer is too thin, the lacquer will not cure and will remain tacky, but it can still dry over a few weeks if the humidity is raised to 90/95%. This effect is called "Bokeru"

Many a production batch has suffered damage due to Chijimu caused by an unexpected thunderstorm causing increased humidity.

In Japan there are no heaters in houses and workshops and the construction method especially in the countryside is very light. Therefore, in the cold winters, Japanese lacquer artists have to bring the studios up to temperature with electric ovens before lacquering, and in the hot and humid summer they have to regulate the temperature and humidity with air conditioners. Some lacquer techniques can only be done in the north of the country or in winter. Here in Europe, we have it much easier.

Urushi Muro at the workshop of Fushimi Urushikobo in Japan

NURITATE (Unpolished Urushi)
Another technique used mainly on kitchen utensils is called "Nuritate". You know it also from the "Tamenuri" fountain pens from Nakaya.

Here, a layer of high quality, transparent Urushi "Sukurome" is applied to a pigmented, finely ground Urushi surface. This surface is not ground and polished and therefore any dust must be avoided or picked out with a bamboo needle before hardening.

Through the Nuritate, layer you can partially see the underlying color shining through. The result with high quality Nuritate is a silky matte. The Japanese love to see how, with time and use, the contact points where the hands touch, such as on chopsticks "O-Hashi" begin to shine. "Yô no Bi" beauty through use is a typical Japanese aesthetic concept.

Charcoal Bowl «Hibachi» with Nuritate Urushi

For lower quality products, the same process is used, but with "Hana-Urushi" or "Shôai Urushi", Urushi in which Rapeseed oil is added. The result is shinier but "Hana-Nuri" is softer than Nuritate and gets worn off quickly.

Fuki Urushi (Impregnation/Saturation)
Fuki Urushi is another technique where wood is impregnated and sealed with Urushi.
In "Tansu" Japanese chests of drawers, the beautiful, carefully selected woods are rubbed with transparent Urushi. The amber color of the urushi give the wood a warm tint. Any additional application darkens the color

Fuki Urushi treated Tansu

Chô Shitsu/Bori/Kamkurabori

Another technique is the carving lacquer "Bori". Red carved lacquer is called "Shûkoku", the black "Tsuikoku".

The technique originates from China. Here, sometimes over years lacquer layer after lacquer layer was built up to a solid body, which is then carved like wood. One also uses different layers of paint to achieve special effects.

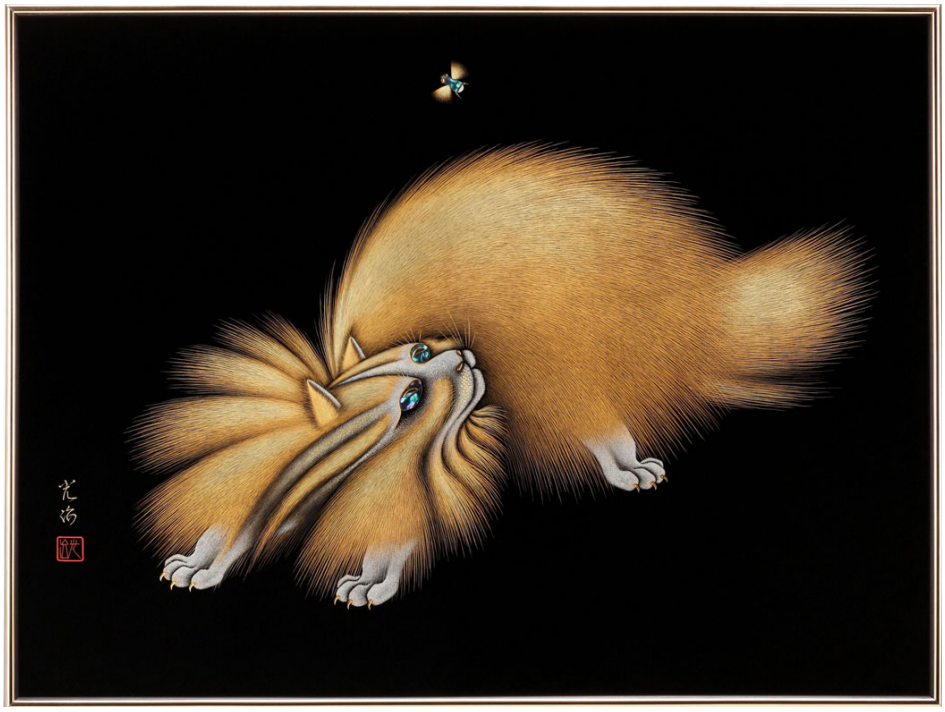
Chôshitsu Container Japan Meji-Periode

In Japan, "Kamakurabori" was developed in the Kamakura period (1185 - 1333), initially to imitate the Chô Shitsu. In this process, the wooden body is carved and then lacquered. Today Kamakurabori is considered an independent technique.

Kamakurabori

Chinkin

Lit. sunken gold. Also: "Chinkin Bori" and "Sôkin". A decorative technique in which a pattern is cut into a lacquered surface with a "Chinkin Nomi" chisel, a thin layer of urushi is applied to the incisions, and gold leaf, gold dust, or colored powders are introduced into the still sticky urushi to create a contrast with the ground. Also known as "chinkoku" when it is black-filled incisions on a colored ground.



Chinkin Work on a «Suzuribako»

Kanshitsu

hollow Lacquer. Also: dakkanshitsu, dakkatsu-kanshitsu-zô, dakkatsu kanshitsu-zukuri. A form of kanshitsu in which textiles are lacquered onto a mold. This was a common technique for statues. First, a core of clay was made, which was then wrapped in layers of hemp cloth, allowing each layer to cure before the next.

The clay core was then removed either by scraping out the core or by cutting the shell into segments and reassembling. Surface details were molded on with a paste of urushi and sawdust "kokuso", and a wooden reinforcement "shingi ōō" was inserted to prevent warping or collapse

Kokusô Tobacco Pipe by Manu Propria

Mokushin Kanshitsu
Wood core dry lacquer. Also known as mokushin kan-shitsuzô, mokushin kanshitsu-zukuri. A form of kan-shitsu in which cloth soaked in lacquer is wrapped around a carved wood core. The surface details were applied with kokuso. The core, or shinogi, can be either a single piece of wood or composed of several pieces.

Buddhist Dry-Lacquer Sculpture, 14. Jahrhundert

Yakitsuke
In Japan, things made of cast iron such as teapots "Tetsubin" were and are treated with a process called "Yakitsuke". This involves burning thin layers of raw lacquer "Ki Urushi" over a hot charcoal fire. This gives the cast objects a beautiful dark brown to black color and at the same time seals them to prevent corrosion.


Tetsubin treated with Yakitsuke

Maki-e
Maki-e is one of the most complex lacquer techniques including a large number of steps.
Often complex lacquer works are made by different specialists. A fellow-lacquer artist Wakamiya Takashi in Japan, has founded a few years ago the Hikojû lacquer studio. There he develops and produces complex and elaborate lacquer objects, with, depending on the case, up to 20 specialists who carry out various work steps.

Since it is almost impossible to track which materials were used by whom, maki-e works are very difficult to restore. There are also many, many secrets in this industry that are jealously guarded. This family is divided into Taka-mai-e = high relief, Hiramaki-e = low relief, Togidashi Maki-e = cut-through Maki-e.


Maki-e Object

Kawarinuri or Sayanuri
“Kawarinuri” experimental lacquers or “Sayanuri” sword scabbard lacquers were created in the Tokugawa period from 1600 onwards. At that time, the Shogunate passed a law forbidding the common people to own lacquer objects with gold, especially scattered "Maki-e". Thus, Urushi studios began to look for new ways and a variety of innovative and creative lacquer concepts emerged in the last 400 years.

Tsugarunuri klassisches Kawarinuri

Urushi skin reactions
There is information and fear going around that Urushi is dangerous and causes bad skin reactions "Urushi Kabare". Many artisans and restorers in the West are therefore unfortunately afraid to work with urushi. Liquid Urushi is indeed extremely allergenic and aggressive but once completely dried/cured these enzymes are broken down.

It may be that once a laughter artist may have been in a hurry to deliver the objects to the outlet in a timely manner. In such a case, if a customer develops a slight skin rash, in Japan they say "the person is blessed".

I personally have no problems with Urushi, but have many small scars from small drops of lacquer that burn into the skin like acid when I notice it too late. Urushi friends in Japan told me that some of them went through quite nasty apprenticeship periods. But with time the body gets used to it.

Antibacterial effect
It is well known that urushi has strong antibacterial properties.
That is why Urushi is the most popular material used on kitchen utensils, soup and rice bowls, sake bowls, chopsticks, etc., besides porcelain.

In ancient China, water pipes and water tanks, were lacquered inside to keep the water clean and sterile. Ship hulls were also varnished to prevent the growth of algae and infestation of shells. (The English did this with copper).

Urushi quasi-indestructible
In 1873, the Japanese government sent a collection of extraordinary lacquer objects to Vienna for the World Exhibition, where they caused a sensation among artists and craftsmen.

Kamm aus der Jômon-Periode 14'000 – 300 BC

On the return voyage, the French mail ship sank off Cape Itsu. After 18 months, the cargo was recovered. The examination revealed that the lacquer objects were completely undamaged.

Urushi resists all known acids and alkalis and can withstand temperatures up to 300 degrees Celsius without damage. From this point of view, a well-made Urushi lacquer can be cleaned with acetone without any problems.

The only real enemy of Urushi is sunlight, especially UV radiation.
Long-term exposure can make the material brittle. But let's remember that in Japan almost everything was lacquered, sword scabbards, armor, bows, palanquins, Buddha statues and whatever. So good urushi is very durable and robust. So, don't be afraid when handling an Urushi fountain pen

Japan and Urushi
In 392 B.C. Mitsumi-no Sukune founded the first school of lacquer art called "Nuribe" or "Urushibe", which produced lacquer objects for the then Emperor Koan and his court.

Ma Twan-Lin, a Chinese official of the 13th century wrote an ethnological book about the peoples outside China. In it, he wrote about Japanese emissaries who came to China in the sixth century. "They came to China dressed in furs and leathers, carrying bows and arrows with bone tips and armor of lacquered leather. They also did not know any written script.

At that time, Japan began to study Chinese religious systems and various artistic methods and literature from us. However, regarding lacquer they could not learn anything from the Chinese. In 1308, the Chinese emperor sent a group of Chinese to Japan to study Urushi.

Negoro Nuri

The ninth century was marked by the introduction of "Shû" vermilion for lacquerware such as wafer and food vessels. There was a marked shift in coloration from black to vermilion lacquer. While the Nara period (710 - 794) was characterized by black lacquer in connection with wafer and food vessels, the Heian period (794 - 1185) must be regarded as a period of vermilion lacquer in this respect. Vermilion is the color of longevity.

Vermilion lacquer ware with an undercoat of black lacquer covered by a layer of red lacquer, or vice versa, used as vessels for food and drink offerings to deities and Buddhas, as tableware and drinking vessels, tea ware, and stationery, became known as "Negoro Nuri."

This name originated from Negoro-ji, a temple in the domain of Kishu (now Wakayama Prefecture), which was very prosperous from the Kamakura to Nanbokuchô periods. During the siege of Negoro-ji in 1585 by Toyotomi Hideyoshi (1536- 1598), the temple was set on fire, and the escaped artisans reportedly spread the Negoro lacquer technique to various parts of Japan.

After years of use, the red lacquer on the surface of the "Negoro Mono" wore off, partially revealing the black lacquer underneath. These lacquered items, which developed their beauty over time, are still highly prized by tea connoisseurs and art lovers.

“Yô no Bi” Beauty through use.

Negoro Heishi, ritual Sake Flask

A few years ago, I had the opportunity to visit the London Gallery in Tokyo, which specializes in Negoro and to examine old Negoro objects together with the owner. Even today, if you run a clean cloth over the red lacquer, red pigments come out of the surface. In the old time, Urushi was stored in wooden barrels, covered with paper soaked in Urushi. Over time, the urushi lost a lot of water and the lacquer became thicker and sticky. To use it, it had to be thinned with oil to make it spreadable. Also, the "Uwazuri" Saturation with transparent lacquer was not known at that time.

Calculation & Cost Factors of Lacquerware

There are several factors that determine the price of an Urushi object. Big brands have production costs, many suppliers to pay, distributors and retailers, and PR/advertising that must be calculated to reach the final retail price.

Early Dunhill-Namiki Advertising

A cost difference already exists in the Urushi material. Urushi from China costs only 10% of the Japanese Urushi.

Roiro Urushi in a 100 gr. Tube

Processing
In Japanese industry, Urushi is also often applied with a spray gun. Officially, an "Urushi product" contains 10% Urushi and 90% chemicals. Higher quality products labeled "double urushi" consist of 20% urushi and 80% chemicals. When applied manually, the cost can be reduced by the number of coats.


Urushi sprayed on objects

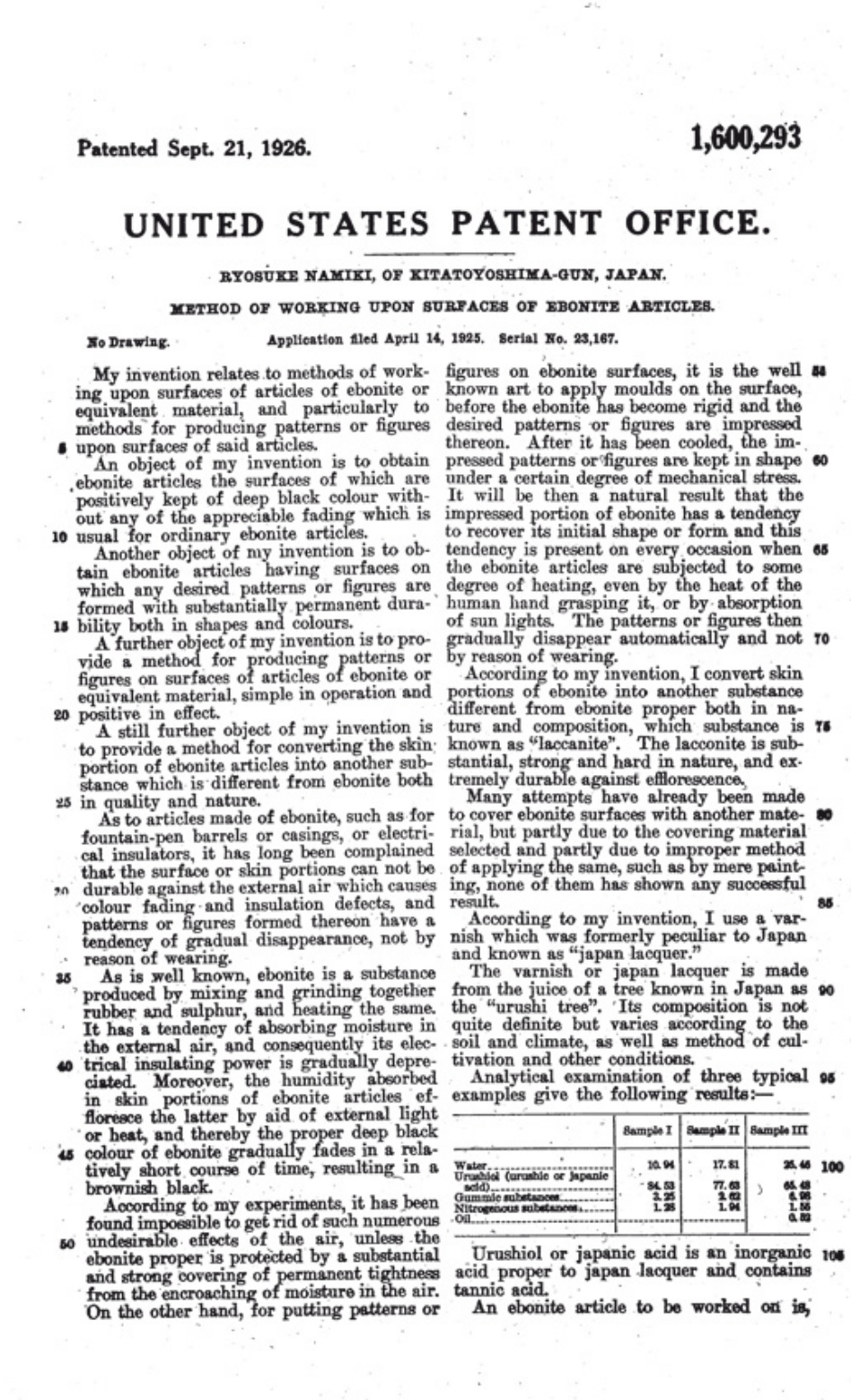
Foundation
Another way to save costs in production has been used for many hundert years, especially for export articles, where the time-consuming work of making the foundation is replaced, for example, by the application of pig's blood or Persimmon juice “Kakishibu”.

The application of a proper foundation made from lacquer and clay powder "Tonoko" and Linen lawn “Asa Nuno” takes a good week. Already in the 15th century, Europeans ordered and bought lacquer goods for export "Namban goods", but even then, were not willing to pay the high prices. Today, this causes many restorer in museums a big headache.


Dôzuri, grinding the lacquer with charcoal before «Uwazuri»

Industrialization of Urushi

One can find many patents looking for ways to simplify the application of urushi or to shorten times or to industrialize working steps. A patent from 1925 on "Methods for machining the surface of ebonite with urushi", filed by Ryosuke Namiki.



Patented Sept. 21, 1926. 1,600,293

UNITED STATES PATENT OFFICE.

RYOSUKE NAMIKI, OF KITATOYOSHIMA-GUN, JAPAN.

METHOD OF WORKING UPON SURFACES OF EBONITE ARTICLES.

No Drawing. Application filed April 14, 1925. Serial No. 23,167.

My invention relates to methods of working upon surfaces of articles of ebonite or equivalent material, and particularly to methods for producing patterns or figures upon surfaces of said articles.

An object of my invention is to obtain ebonite articles the surfaces of which are positively kept of deep black colour without any of the appreciable fading which is usual for ordinary ebonite articles.

Another object of my invention is to obtain ebonite articles having surfaces on which any desired patterns or figures are formed with substantially permanent durability both in shapes and colours.

A further object of my invention is to provide a method for producing patterns or figures on surfaces of articles of ebonite or equivalent material, simple in operation and positive in effect.

A still further object of my invention is to provide a method for converting the skin portion of ebonite articles into another substance which is different from ebonite both in quality and nature.

As to articles made of ebonite, such as for fountain-pen barrels or casings, or electrical insulators, it has long been complained that the surface or skin portions can not be durable against the external air which causes colour fading and insulation defects, and patterns or figures formed thereon have a tendency of gradual disappearance, not by reason of wearing.

As is well known, ebonite is a substance produced by mixing and grinding together rubber and sulphur, and heating the same. It has a tendency of absorbing moisture in the external air, and consequently its electrical insulating power is gradually depreciated. Moreover, the humidity absorbed in skin portions of ebonite articles effloresce the latter by aid of external light or heat, and thereby the proper deep black colour of ebonite gradually fades in a relatively short course of time, resulting in a brownish black.

According to my experiments, it has been found impossible to get rid of such numerous undesirable effects of the air, unless the ebonite proper is protected by a substantial and strong covering of permanent tightness from the encroaching of moisture in the air. On the other hand, for putting patterns or figures on ebonite surfaces, it is the well known art to apply moulds on the surface, before the ebonite has become rigid and the desired patterns or figures are impressed thereon. After it has been cooled, the impressed patterns or figures are kept in shape under a certain degree of mechanical stress. It will be then a natural result that the impressed portion of ebonite has a tendency to recover its initial shape or form and this tendency is present on every occasion when the ebonite articles are subjected to some degree of heating, even by the heat of the human hand grasping it, or by absorption of sun lights. The patterns or figures then gradually disappear automatically and not by reason of wearing.

According to my invention, I convert skin portions of ebonite into another substance different from ebonite proper both in nature and composition, which substance is known as "laccanite". The lacconite is substantial, strong and hard in nature, and extremely durable against efflorescence.

Many attempts have already been made to cover ebonite surfaces with another material, but partly due to the covering material selected and partly due to improper method of applying the same, such as by mere painting, none of them has shown any successful result.

According to my invention, I use a varnish which was formerly peculiar to Japan and known as "japan lacquer."

The varnish or japan lacquer is made from the juice of a tree known in Japan as the "urushi tree". Its composition is not quite definite but varies according to the soil and climate, as well as method of cultivation and other conditions.

Analytical examination of three typical examples give the following results:—

	Sample I	Sample II	Sample III
Water	10.94	17.81	25.46
Urushiol (urushic or japanic acid)	84.53	77.63	65.48
Gummic substances	3.25	2.62	6.98
Nitrogenous substances	1.28	1.94	1.56
Oil			0.52

Urushiol or japanic acid is an inorganic acid proper to japan lacquer and contains tannic acid.

An ebonite article to be worked on is,

Patent by Ryôsuke Namiki, Urushi-Application in rotating Apparatus

Wages, taxes and duties

Maybe worth knowing: In Japan, taxes, duties and labor costs are comparable to those in Switzerland. Japan is not a low-wage country and not comparable to China or Thailand.