

THE NORTH SEA SHIP CANAL.

In our number for June 22 we gave maps showing the location of this great engineering work, which, starting at the mouth of the River Elbe, in the North Sea, extends across the peninsula, a distance of 61 miles, to the bay of Kiel, on the Baltic. The canal passes through a level country for the most part, although in some places the cutting down of high embankments became necessary. We give from *Illustrirte Zeitung* characteristic illustrations, showing some of the scenery along the route of the canal, and also pictures of some of the machinery employed in the execution of the work.

One of our engravings is a pastoral scene near Burg, in Dithmarschen, showing the canal in the distance.

Another is a view of the banks of the canal near Knoop. In the work of removing the earth to form the ditch or canal proper, strong bucket scrapers operated by steam were employed. These lifted the dirt into cars with great rapidity and economy. One of our engravings shows a steam scraping machine at work. Another engraving shows one of the great steam dredging floats at work. In this case the silt, which is lifted by an endless chain of buckets, is carried through a tube for a long distance and deposited along the bank of the canal, as shown.

Gold Lacquer Photographs.

Before entering into the details of making such gold lacquer photographs, we shall describe their appearance, and, in outline, how they are made. The patented pictures appear like our ordinary gold lacquer work with photographic picture on them. They are very beautiful and artistic. Wooden boards or boxes which have a flat or nearly flat or a cylindrical surface, such as hanging panels, handkerchief boxes, cylindrical flower vases, etc., are coated with black lacquer, and the part where the pictures may be put on is gold lacquered with some layers of gold leaf, and the remaining part or margin of the pictures is decorated with gold lacquer paintings. The picture is put on the gold ground by the well known "dusting on" process, fixed with another coat of rather transparent lacquer and is polished.

The margin of the picture is finished in bright polish or matt, with gold lacquer decorations painted or plain. In the case of panels, the decorated margin itself makes a very attractive frame.

Lacquer work is one of Japan's chief products. In no other place in the world is this work done except in China, and Chinese lacquer work is far behind Japanese. There is, in fact, no comparison between the two. Every one who has seen really good Japanese lacquer work must admire its beautiful appearance and hard texture. The lacquer protects the materials from injuries arising from dampness of air and from all kinds of acids.

Lacquer is made from the gummy juice of a particular tree, growing both cultivated and wild, called *Urushi-no-Ki*, which means lacquer tree. The trees from which the lacquer is collected are mostly cultivated for this particular purpose. In the season of the year when the sap current is rising, men make a cut on the trunk of the lacquer tree, and from this cut gummy juice is collected by scraping it with a peculiarly shaped stick. This is refined to lacquer by evaporating the watery part.

This refined lacquer may be used with or without coloring matter. That used without coloring matter is always black, chocolate or light umber, and those with the mixture of coloring matter can be made in various colors.

The lacquer coating is done as a special branch of occupation; the patentee also leaves it in the hands of the lacquer painters. The things to be coated are first prepared with body lacquer consisting of a mix-

ture of hard lacquer and fine brick dust. After the preliminary coating has dried it is ground down smooth, with a kind of snake stone, and then with charcoal, to give the finishing coat. After receiving the last coating, it is brought to either a bright or a matt surface, and at the part where pictures are to be put on, a gold ground is laid with two or three

Japan or to be satisfied with a fine black French polish, gilded where the picture is to be printed.

Upon this prepared surface we might put the picture by the "dusting on" process or ordinary carbon transfer process. The picture being fixed might be protected by some hard transparent oil varnish, such as best copal varnish. Dammar varnish is the most

transparent of all, but it is not so hard as copal. Although no varnish protection is as hard and strong as lacquer, we consider that a really good varnish is as strong as is necessary for the purpose under consideration. The method we suggest will make quite as attractive a picture as that produced by the patentee's process and at a cheaper rate.

As to the patentee himself, we trust that he will adopt no process more simple and cheap than the one he has patented, but will continue to turn out the high class articles that he has heretofore, and will retain his well merited reputation.—Shashin Sowa, *Photographic News*.

Shipbuilding for the Year.

The Bureau of Navigation has received preliminary returns showing that 682 steam and sailing vessels of 132,719 gross tons were built and documented in the United States during the last fiscal year, compared with 776 steam and sailing vessels of 121,547 tons during 1894, an increase of 11,000 tons. Final and revised returns will somewhat increase the figures by the addition of barges, etc. Steam vessels numbered 283, of 75,728 gross tons; sailing vessels, 399, of 56,990 tons, a decrease of 8,000 tons steam and increase of 19,000 tons sail compared with 1894.

Among notable additions of the year to the merchant fleet are the steamers *St. Louis*, *Northland* and *Newport News*.

Among the notable American marine disasters of the year are the recent foundering of the steamship *Colima*; the loss of the steamship *Keweenaw*, reported missing with thirty-one lives on the Pacific; the stranding of the steamships *Cienfuegos* and *Ozama*, and the loss of the steamship *Ghicora* on Lake Michigan.

Test of the Niagara Electric System.

The first practical demonstration of the system of transmission to be employed by the Cataract Construction Company in carrying the electric power to its customers took place June 29. Two thousand horse power was conveyed from the power house to the works of the Pittsburg Reduction Company, a distance of three-quarters of a mile.

Its course was first through the subway to the transformer building, where the alternating current, by passing through both static and rotary transformers, is changed to a direct current, then sent to the factory. The machinery worked smoothly, and the test was pronounced an entire success.

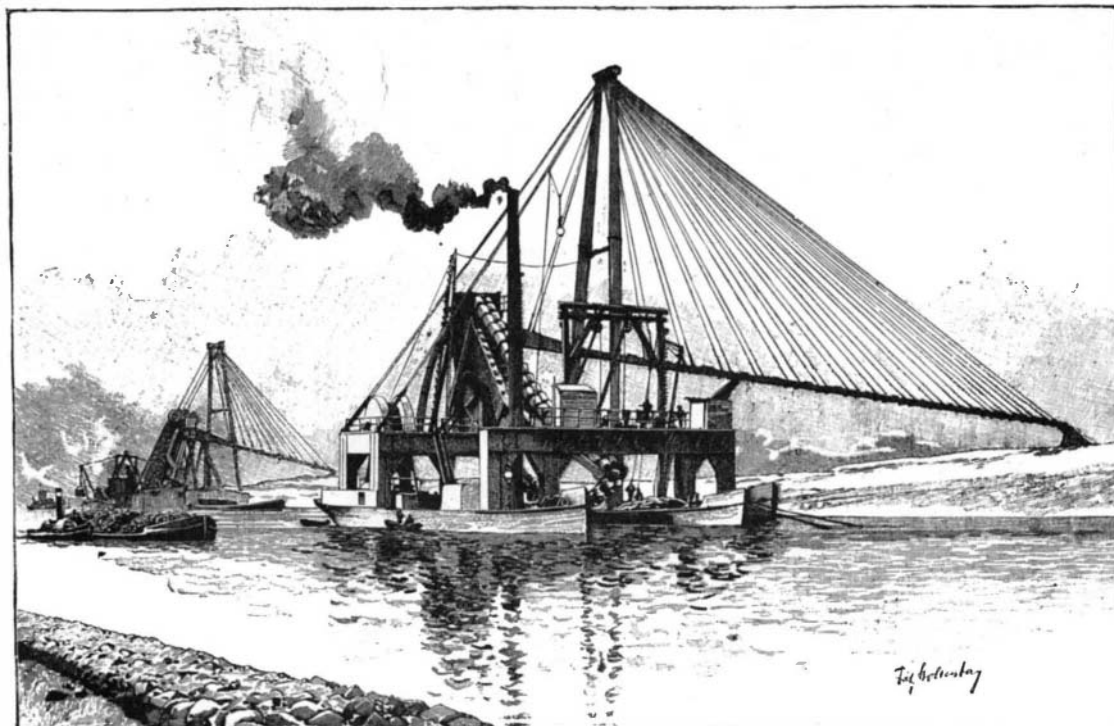
Among those present were President Seller, of the Niagara Falls Power Company; Chief Electrician Thompson, of the General Electric Company; Chief Engineer Breckenridge, of the Cataract Construction Company; Superintendent Emmett, of the General Electric Company; and the engineers of the General Electric Company who have been in charge of the work.

A Law for the Protection of Pneumatic Tires.

A Chicopee, Mass., ordinance is as follows: No person shall put or place, or cause to be put or placed in or upon any street, lane, alley, or other public place in the city, any ashes, glass, crockery, scrap iron, nails, tacks, or any other articles which would be liable to injure or damage the tires or wheels of bicycles or any other vehicles which have wheels with rubber or pneumatic tires. Any person violating the provisions of the preceding section shall be liable to a fine of not less than \$2 nor more than \$20 for each offense.



THE NORTH SEA CANAL—A STEAM SCRAPER AT WORK.



THE NORTH SEA CANAL—A STEAM DREDGE AT WORK.

layers of gold leaf. This gold ground is also fixed by a protective coating of lacquer. When the work is so far finished, the things are sent to a gold lacquer painter, where the decorative gold painting is done.

The patentee takes these prepared boards, panels, etc., he makes photographic prints on them by means of the "dusting on" process. Any good formula for the "dusting on" process will be found suitable.

First, this dusted on picture is fixed in the ordinary way, and when it is dry a protective lacquer coating is put on and polished. This is all that has

been patented by Mr. Mizuno, of Yokohama, in connection with the gold lacquer process.

We suggest a method quite similar to the patented process, as regards result, which is easier, and at the same time cheaper. In this country it is very easy to get lacquer made, but where it cannot be got it would be necessary to import the materials from

city, any ashes, glass, crockery, scrap iron, nails, tacks, or any other articles which would be liable to injure or damage the tires or wheels of bicycles or any other vehicles which have wheels with rubber or pneumatic tires. Any person violating the provisions of the preceding section shall be liable to a fine of not less than \$2 nor more than \$20 for each offense.