

## Science and Art.

## The Art of Dyeing.—No. 31.

**BLACK ON SILK**—This color is easily dyed on silk fabrics which may have been almost any other color. The common way of dyeing a good black on silk is to prepare it in a mordant of the nitrate of iron, wash it well, and dye in a liquor of logwood. The nitrate of iron is kept in a tub ready prepared, and standing in every silk dyehouse. It is made by dissolving clean iron hoops, slowly, in nitric acid, and then mixing it in a large tub with water until it stands about  $2\frac{1}{2}^{\circ}$  in the hydrometer. The silk is cleansed from gum and grease, handled carefully for ten minutes, then sunk under the liquor for two hours. It is then lifted, and rinsed in three tubs of clean cold water, and is ready to receive the logwood. The liquor of 6 lbs. of logwood, boiled for one hour, is sufficient for ten pounds of silk. Some fustic liquor (three pounds) is added, to throw the color on the jet shade. The goods are handled for about half an hour in this logwood and fustic liquor, then lifted, washed, and dried. If they should have a grayish appearance, it is a sign they want more logwood; if they have a brownish appearance, it is a sign they have received too much. This latter is remedied by handling the goods in a very weak sour of diluted sulphuric acid, by which some of the logwood is stripped off. Black silks are rinsed in hot water before drying.

Another way to dye black is to make up a hot solution of copperas, a little blue vitriol, and some fustic in a boiler, and handle the goods in this for one hour. Four ounces of copperas and one-fourth of an ounce of blue vitriol, are sufficient for each pound of silk. When taken out of this preparation they should be of an olive color; they are now hung up and aired for ten minutes. A clean vessel of logwood liquor is then made up, and the goods entered at a temperature of about  $80^{\circ}$ . The heat is then increased to nearly  $200^{\circ}$ , and kept at that heat for half an hour when they should be a good color, and fit to be lifted and washed. The same signs of the want of dye, or a superabundance, as described, answer for all methods of dyeing this color, and the same treatment effects the same objects. In dye shops where wool and silk are colored, it is a common practice to prepare a batch of woolen goods, without any addition of copperas, in the same preparation as that used for a batch of silk goods; and as silk does not take up the coloring matter of the logwood so well as wool, the same liquor which has dyed a batch of silk goods is nearly of sufficient strength for dyeing a batch of woolen goods. This last is the common method of dyeing in jobbing dye-houses; the nitrate of iron process is the common method in skein dye-shops.

When black silks have a somewhat brownish appearance, they are improved in color by running them through a solution of warm soap (soap suds.) Silk pieces are dressed with a weak size of glue, and if somewhat brown in color, a little soda and sweet oil are added to the size, which greatly improves the color. Sweet milk is also used to dress black silk goods in the piece, and some prefer to slick over their surface with sweet oil rubbed on a soft roller cushion, when the goods are framed and dried. Goods of a blue color have a good base for black, yea almost all colors except spirit reds and purples. A good black color can be dyed on silk in two hours, as described.

A fast black is dyed on silk by coloring it a fast indigo blue, then preparing in the nitrate of iron, and dyeing on the top with logwood, fustic, and some nut-gall or sumac liquor, in a kettle.

**DUTCH BLACK**—This color is dyed by preparing the silk in a mordant of alum for one hour, then rinsing in cold water, and dyeing in a tub of logwood liquor (6 lbs. of wood to the 10 of silk) to which a little urine is added for piece goods; but silk yarn, instead of urine, receives a strong solution of

soap. The goods are handled in the logwood liquor for half an hour, then washed, and dried. By adding some fustic liquor to the logwood, and using neither urine nor soap, a tolerable jet black will be dyed. "Dutch black" is simply a deep logwood blue.

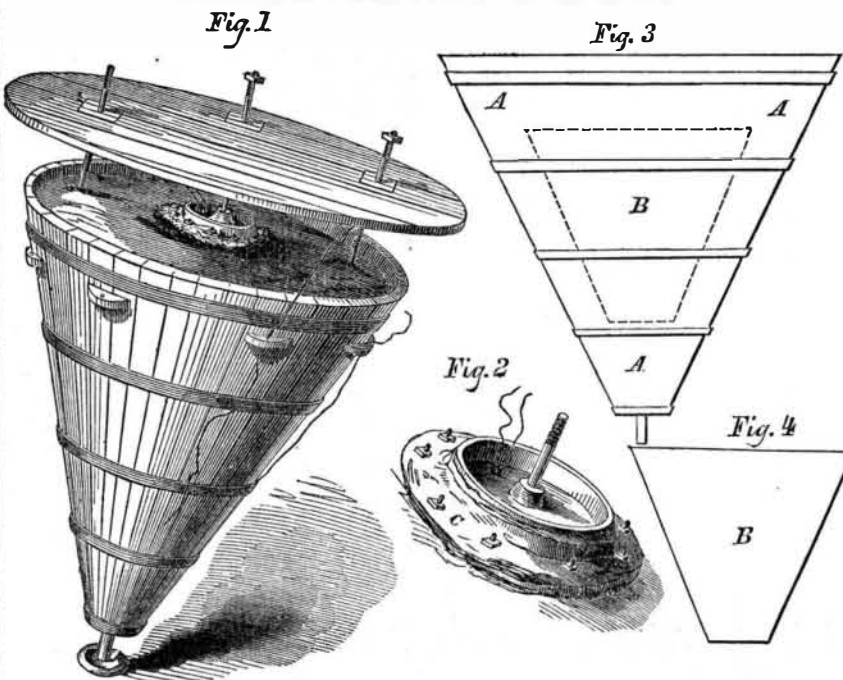
This is a very simple method of re-dyeing ribbons, and can be easily practiced by our farmers' wives, so that they can make old ribbons look as well as new for mourning. They must wash the old ribbons in hot strong soap suds first, to remove all the grease, before they are placed in the alum. When dried, they are easily dressed afterwards, by rubbing over their surface a rag moistened with sweet milk, then ironing them out smoothly on the wrong side with a hot flatiron.

Black crape veils frequently become rusty in appearance; their color is renewed by simply dipping them in a hot solution—not very strong—of logwood. This kind of goods is very difficult to dress. They are run through a strong solution of glue, and pressed (clapped and squeezed between the

hands) in a warm room, till nearly dry, when they are placed in frames, or on a cylinder heated with steam, and thus finished.

Black velvet often becomes rusty in color, and as it is expensive, it pays well to have it re-dyed. This is done by a simple dip in logwood, but great care is taken in handling it, so as not to allow the nap to be laid flat down. The cheapest velvets are the most troublesome to re-dye; there is no trouble with the best quality of thick velvet, because its nap is not easily flattened down. The best quality of velvets can therefore be re-dyed to look as well as new, but not the poor kinds. Soft silks are the easiest to re-dye, and always look best; hard lustering never was intended to be re-dyed. Figured silk goods can be re-dyed black from almost any color, and be made to look nearly as well as new. Those who have old silks which might be converted into blacks from other colors, for mourning, may rest assured that the better the quality of silk, the more certainly there is of good colors, and a good finish.

## RUSSIAN INFERNAL MACHINE.



The Allies, England and France, it is well known, have lately concentrated a tremendous number of war vessels in the Gulf of Finland, with a view to the attack and capture of Cronstadt, St. Petersburg, and other Russian strongholds in that vicinity.

In expectation of such a foray, the Russians appear to have made preparations to give their visitors a warm reception; and as it would have been impossible for them to successfully cope with the Allies on the water, they have been trying to see what they could do *under* water.

It appears that the Russians have adopted the expedient of keeping their harbors clear of their enemies' war ships by sinking infernal machines, or powder magazines, under water, and so arranging them as to blow up any vessel which passes over.

The harbor of Cronstadt appears to be well supplied with these subtle and dangerous missiles, for on a recent reconnoissance of the place by the English and French admirals, one of their steam frigates came very near being blown to atoms. She exploded two of these machines, whether from contact or otherwise, is uncertain—luckily in five fathoms water; as it was, the one exploding under the starboard bow fairly lifted her out of the water, bulging in the side before the paddle box, and ripping off much copper—at the same time throwing up a column of water alongside, about 14 feet high. Had it happened in shoal water, or had the explosion taken place more directly under her, it would probably have destroyed the vessel and all on board. The inside of one portion of the ship was considerably injured as it was.

The London *Illustrated News* publishes an engraving of one of these infernal machines, which we herewith reproduce. The description of its operation and parts is rather indefinite.

A is the outer case of the machine; B is

the inner case, containing the charge of fine gunpowder; C is a thick ring of gutta percha, fitting closely to an inner iron ring above it: within are the wires for igniting the charge. In the entire machine is shown the table-top for protecting the wires, &c. The machine is about four feet in depth, and the circumference of the top about three feet. The whole is made with staves about three inches thick.

These machines, when seen from a vessel's deck, have the appearance of large cylinders moored under water, well below the surface, with a funnel rising from the center to within a few feet of the same, and the probability is, that violent contact causes explosion, though it is perfectly possible, and even probable, that they are fired by batteries from the shore (on the vessel's identifying herself with their position,) more particularly as neither of the explosions which took place were under the bottoms, but alongside, and consequently the amount of damage was small.

In a subsequent search over the waters of Cronstadt harbor, the English seamen discovered, and took safe possession of fourteen of these machines. During an examination by Admiral Seymour, on the deck of his vessel, one of them exploded, and the Admiral himself was wounded, but not seriously.

The first time that explosive machines were ever used in war, for destroying vessels, occurred, we believe, during the Revolutionary War, in New York. It is said that an attempt was made to blow up an English frigate while lying at anchor in the harbor, by means of a submarine boat, which was intended to sink beneath the surface, and enable the operators to fasten and fire a magazine beneath her keel. The men in the boat, however, did not succeed in securing the machine fast, and it exploded near the side of the ship, without damage, but much to the consternation of all on board. The com-

mander immediately slipped anchor and sailed, deeming it imprudent to remain where there was a probability of destruction by such submarine volcanoes.

During the war between the United States and Tripoli a small vessel called the *Intrepid*, was fitted up as an infernal machine to be sent into the harbor of Tripoli and destroy the enemies' vessels. The object intended was successfully accomplished, and materially assisted in hastening a peace.

## Cold Water for Toothache.

Dr. Sanborn, of Andover, Mass., recommends a resort to the nearest pump as a remedy for the toothache, where extraction is impracticable. He says that by making cold appliances to parts nearest the offending member, probably in less than an hour the pain would be gone.

In many cases this plan has proven effective; but no more so than hot water appliances; this is our experience.

## LITERARY NOTICES.

**PHOTOGRAPHIC CHEMISTRY**—This is the title of a work published from the London edition, by S. D. Humphrey, No. 546 Broadway, this city, the author being T. Frederick Hardwick, late demonstrator in King's College, London. It is a very thorough and able work on this art. It is filled with information of the greatest importance to every one engaged in the photographic and Daguerreotype arts. The author imparts complete information on the first principles of the art, and does so in such a manner that the amateur may become well acquainted with his subject. For the practical artisan there is also much information imparted in a simple and satisfactory manner, as we perceive it addressed to the reader as if he were ignorant of chemistry, thus making it a text book by its explanation of all the processes, the chemicals used, and the "why and wherefore" of the certain results produced.

**WICKERSHAM'S IRON WORK AND WIRE FENCES**—A new edition of the work of John B. Wickersham, 312 Broadway, this city, has just been published by Fowler & Wells. It illustrates the different kinds of beautiful wire fences, wire furniture, such as bedsteads, chairs, &c.; also cast iron lintels, girders, capitals, &c., and gives the price of each. The manufactures of Mr. Wickersham are exceedingly beautiful and good. We see, by a large engraving at the end of the work, that he has not given up his celestial railroad for Broadway yet. Well, we may live to see this railroad in operation.

**DICKENS'S HOUSEHOLD WORDS**—The number for August, of this popular periodical, has been promptly issued by its publishers, Dix & Edwards, No. 10 Park Place. It contains a most interesting and instructive article on "Mechanics in Uniform," being an account of the sappers and miners belonging to the British army.



Inventors, and Manufacturers

THE SCIENTIFIC AMERICAN.  
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