

Science and Art.

The Art of Dyeing—No. 27.

BUTTERNUT BROWN—A very good cinnamon brown color is dyed with butternut bark and camwood, and many of our farmers' good-wives are well acquainted with the method, but to those who are not, the following will be useful:

For 24 yards of common home-made woolen cloth, put into a large clean kettle 3 lbs. of camwood, and 3 pecks of butternut bark, and allow them to boil for ten minutes; the cloth is then entered and boiled for one and a half hours. The cloth is then lifted, and two ounces of copperas placed in the kettle, dissolved, and the froth skimmed off; the goods are then re-entered, boiled for half an hour, lifted out, washed and dried. By increasing the quantity of these dye stuffs, and using more copperas for saddening, a darker brown will be produced. The butternut bark is used as a substitute for fustic, it makes a fast color, but does not give as rich a hue to the goods.

HICKORY BARK.—By preparing woolen goods in an alum mordant of 4 ounces to the pound of wool, and washing the goods well afterwards, they can be dyed a beautiful brown by using hickory bark, butternut bark or yellow oak bark, as substitutes for fustic, and pursuing the process above described. Lombardy poplar bark or the leaves of the peach tree, may also be used for the same purpose and in the same way.

From almost every tree in our forests, by the use of an alum mordant or preparation, some camwood, and a little logwood (always saddening as described with copperas) every variety of brown shades may be dyed—the easiest way, however, to dye good browns on woolen goods, is that described in the first receipt of last week's article.

Bronze Color.—For ten pounds of woolen goods, use five pounds of logwood, one of camwood, and half a pound of alum. Boil the goods in the liquor for two hours, then lift them out and wash them well. Into another clean kettle of boiling water, add five pounds of fustic; boil the goods in this for one hour, then lift, wash and dry.

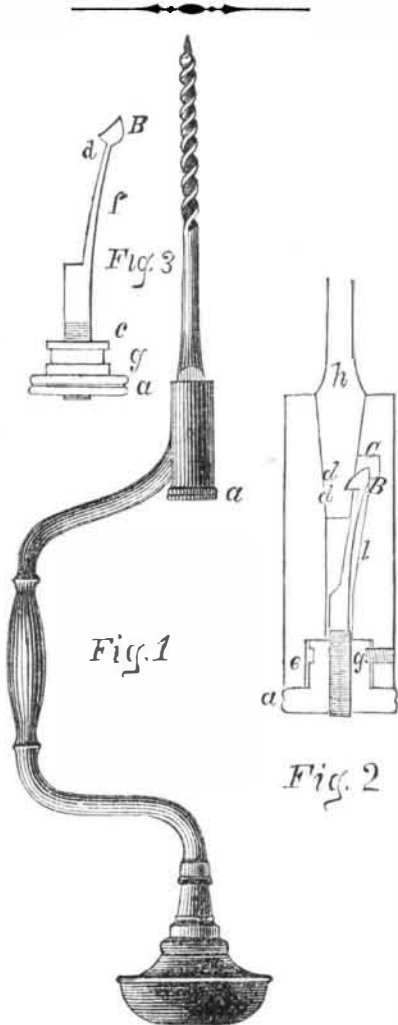
DARK CLARET BROWN.—For ten pounds of goods, use 8 lbs. of logwood, half a pound of crude tartar, as much of alum, and one gill of the muriate of tin. Boil the goods in this for one hour and a half, then lift and wash them well. Into another clean kettle of boiling water, place one pound of fustic, and half a pound of crude tartar; enter the goods, boil for one hour, then lift and wash them, and they are ready for being dried. This color is subject to *croak off*, hence the last course described—boiling in fustic and tartar, is simply for the purpose of rendering them cleaner—some call it "*setting the color*."

The muriate (chloride) of tin must never be used with camwood. It may, however, be employed as a preparation or mordant for camwood, like alum, but great care must be exercised to wash the goods before they receive the cam wood.

Brown Color on Cotton.—There are various ways of dyeing this color on cotton, all of which are different from that pursued for dyeing the same color on silk and woolen goods.

Rich Bark Brown.—The cotton is first dyed a deep yellow with quercitron bark, 3 lbs. to the 10 of goods, then washed, and then steeped in sumac for twelve hours, and afterwards mordanted in the red spirit tub for about two hours, receiving a preparation exactly as if for claret brown. About four pounds of peachwood and two of logwood are then boiled, and in this liquor the goods are handled for half an hour, and raised with some spirits. This is the only correct method of dyeing a rich bark brown on cotton. It is positively necessary that the goods should have the proper depth of yellow on them before they receive the redwood and logwood, and that they should be dyed as quickly as possible in the latter bath. It is exceedingly difficult to bring up bark browns to the proper shade if they fail in yellow.

The yellow color leaves the cotton—dissolves off as it were—by long handling in either redwood or logwood liquors, hence the necessity for a certain depth of yellow as a base, and rapid handling in the finishing dye liquors.



The annexed engravings represent an improved mode of fastening auger and other bits to their sockets, for which a patent was granted to Ebenezer W. Nichols, of Worcester, Mass., on the 15th of May last. Fig. 1 is a side view of a bit stock, with an auger in it; fig. 2 is a half section of that part of the stock in which the shank of the auger or bit is fastened, and fig. 3 is a detached view of the burr-nut and steel spring. Similar letters refer to like parts.

The nature of the invention consists in the peculiar method of fastening the shank of the auger or other kind of bit into the socket of the bit stock, so that the act of boring or drawing the auger from the hole bored, shall have no tendency to loosen the said shank, whereby the auger may be fastened in its place or detached therefrom with the greatest facility desired, and when adjusted in its position, very little strain comes upon the fastening of the auger. Fig. 2 is a half section of that part of the bit stock which holds the auger (or bit) *h*, in which an appropriate opening is made by a sand core when the bit stock is cast, (the most of which are made of malleable iron.) Said opening extends through and is of suitable form to receive the bit *h*, by the side of which, and about three-fourths of an inch from the end of the taper opening is a recess *c*, against which is a notch *d*, in the bit *h*.

Into the notch *D*, fits a corresponding projection, *D*, which is brought into its place by means of the burr nut, *A*. To loosen the bit, *H*, unscrew the nut, *A*, and the projection, *B*, springs back into the recess, *C*, by the spring, *F*.

In fig. 3, may be seen the spring, *F*, upon one end of the projections, *B* and *d*. Upon the other end is cut a screw, and a corresponding thread in the burr nut, *A*. In said nut is a groove, *g*, (fig. 3) into which is placed the set screw, *g*, (fig. 2) which holds the nut stationary endwise, and adjusts the projections, *B d*, as desired to both fasten and unfasten the bit, *H*.

The claim of this invention is for the burr-nut, *A*, or its equivalent in combination with the spring, *F*, operating upon the wedge principle (by the use of the screw,) the pro-

jections, *B d*, for the purpose and in the manner herein described.

Application of Essence of Coal as a Substitute for Oil of Turpentine.

M. Pelouze, proposes to use an oily fluid as a substitute for oil of turpentine in painting. He obtains this fluid, which boils from 100 to 168° Centigrade, by the distillation of cannel coal, by means of superheated steam. This liquid is colorless, very fluid, and volatile, leaving no stain upon paper, and is not altered by exposure to light. It has a penetrating smell, which reminds one of common coal gas; but this entirely disappears when it has evaporated. A number of comparative experiments having been made with the object of comparing it with oil of turpentine, by a committee of the Society d'Encouragement of Paris, all of which resulted in showing that walls, woodwork, &c., painted with the essence of coal, dried far more rapidly, and the smell disappeared sooner, than where essence of turpentine was employed. For example, in one case where the coal essence and oil of turpentine were respectively mixed with three times their volume of oil, and employed under exactly similar circumstances, the smell of the essence of coal was completely dissipated at the end of three days, while that part painted with the turpentine mixture had a strong smell, and was not completely dry.—*Bulletin de la Societe d'Encouragement*.

Treatment of Tomatoes.

During the early part of the growth of tomatoes, the surface of the soil should be frequently disturbed. When they have set their fruit they may be shortened, and it may be deferred until the fruit is of half size, when it may be readily observed that 90 per cent. of the fruit is within 18 inches of the ground, while 90 per cent. of the vine or bush is beyond that distance. The vine, therefore, should be trimmed to within half an inch of the tomato nearest the end of each branch. This will admit sun and air freely, and although ten per cent. of the tomatoes that might have grown will be taken away, still the remaining portion will be greater in weight and measure than if the vine had not been shortened in. Tomatoes are also several days earlier by this treatment.

Yeast for Putrid Sore Throat.

The following relating to the cure of this terrible malady, is taken from *Nelson's American Lancet* :—

"Boy 12 years old; all the symptoms of malignant sore throat, with eruption of the face and neck of a dark color; eruption extended over the whole body on the fourth day; symptoms of ulceration and typhoid fever; pulse small, thready, feeble and quick; mind wandering and incessant muttering; inability to articulate intelligibly; alternate severe pains in the head and abdomen; little sensibility in the throat; small white gray spots throughout the mouth, tongue and fauces, and numerous petechiæ on the face and abdomen. Ordered half a pint of fresh brewer's yeast, mixed with a half pint of water and brown sugar sufficient to flavor, one tablespoonful to be taken every two hours; gargle of borate of soda, honey, and infusion of sage; occasional sinapisms to the throat. Up to this time the fever and eruption had been regularly intermittent, coming on about 2 in the morning, and subsiding about 12 m., when the skin became quite smooth, and very slight signs of the eruption. Great change had taken place the next morning; had rested tolerably well during the night; tongue and mouth nearly relieved and clean; fever and eruption quite moderate, and passed off before 9 o'clock; could eat with facility, and food was allowed him freely. He continued the yeast mixture for two days more, when all that was required to constitute him perfectly well was strength."

China Sea Grass.

China grass is an article which should be immediately introduced into the United States. In China it is cultivated along the borders of rice fields. In Queen Elizabeth's time, clothes made of it were imported into Europe. The Hollanders preferred it for

fine fabrics to those made of flax. The tenacity is such that a thread may be spun one hundred and seventy-five feet long without winding. It is fifty per cent. stronger than flax. A thread over six miles in length weighed only a trifle over one thousand two hundred grains.

It has recently been discovered that young fry of salmon must remain two years in fresh water before they migrate to the sea. It had been supposed that they only remained one year.

Delmonico's Hotel, in this city, is to be illuminated with Gesner's Kerosene Gas.

LITERARY NOTICES.

LIEBIG'S PRINCIPLES OF AGRICULTURAL CHEMISTRY.—We are glad to see that John Wiley, 107 Broadway, this city, has published in a neat pocket volume, the above-named work, embracing late researches made in England. Dr. Gregory of Edinburgh—the translator of it from the German,—says, that Liebig has been heretofore misunderstood in reference to the "Mineral Theory of Manures." This little work, we hope, will find a place in every farmer's library; for it is worthy of it.

THE LONDON QUARTERLY.—The last number of this able Review, has just been issued by its enterprising publishers, Messrs. Leonard Scott & Co., 54 Gold street. It contains eight solid and profound articles on the following subjects: The Crystal Palace, Venetian Despatches, Madame de Maintenon, the Forester, Food and its Adulterations, the Emperor Nicholas, Sir Richard Seele, Public Affairs. It is an excellent number. The article bearing the title of Forester, is a scientific one of no small value—it relates to forest trees. Every gardener and farmer in our country should read it.

NORTH BRITISH REVIEW.—This profound periodical for this quarter, also published by Leonard Scott & Co., contains a review of Muirhead's Life and Inventions of James Watt,—an article of peculiar interest to engineers and inventors. An article on Sir Walter Raleigh and his Times, should be read by everyone who desires to be fully acquainted with the early history of our country. There are five other articles, all good, especially the Military Disorders of England and their causes; it exposes the system of government routine, but lays the blame upon the nation at large.

THE MISSING BRIDE.—This is a neatly printed and respectable-looking volume, published by T. S. Peeson, Chestnut street, Philadelphia. The author is Mrs. Emma D. E. Southworth, one of our best novel writers. This novel adds to her already justly deserved laurels; it is thrilling from beginning to end.

MOREDUN.—This is a novel published by W. P. Fetridge & Co., this city, and said to be by Sir Walter Scott—it being found in manuscript in Paris, and written for a friend. It has the appearance of being genuine, at least no one but a Scotchman could have written it—no Frenchman could have forged the characters in the work. It is not, however, one of Scott's best.

THE NATIONAL MAGAZINE.—The July number of this excellent magazine, Carlton & Phillips, this city, publishers, contains a biography of Bishop Scott, of the M. E. Church, with a very excellent wood cut. It can aim the "Deserted Village of Goldsmith, beautifully illustrated with eleven wood cuts. It is a capital number.



Inventors, and Manufacturers

The Tenth Volume of the **SCIENTIFIC AMERICAN** commenced on the 16th of September. It is an ILLUSTRATED PERIODICAL, devoted chiefly to the promulgation of information relating to the various Mechanic and Ohemic Arts, Industrial Manufactures, Agriculture, Patents, Inventions, Engineering, Millwork, and all interests which the light of PRACTICAL SCIENCE is calculated to advance.

Its general contents embrace notices of the LATEST AND BEST SCIENTIFIC, MECHANICAL, CHEMICAL, AND AGRICULTURAL DISCOVERIES, with Editorial comments explaining their application; notices of NEW PROCESSES in all branches of Manufactures; PRACTICAL HINTS on Machinery; information as to STEAM, and all processes to which it is applicable; also Mining, Millwrighting, Dyeing, and all arts involving CHEMICAL SCIENCE; Engineering, Architecture; comprehensive SCIENTIFIC MEMORANDA: Proceedings of Scientific Bodies; Accounts of Exhibitions,—together with news and information upon THOUSANDS OF OTHER SUBJECTS.

Reports of U. S. PATENTS granted are also published every week, including OFFICIAL COPIES of all the PATENT CLAIMS; these Claims are published in the Scientific American in ADVANCE OF ALL OTHER PAPERS.

The CONTRIBUTORS to the Scientific American are among the MOST EMINENT scientific and practical men of the times. The Editorial Department is universally acknowledged to be conducted with GREAT ABILITY, and to be distinguished, not only for the excellence and truthfulness of its discussions, but for the fearlessness with which error is combated and false theories are exploded.

Mechanics, Inventors, Engineers, Chemists, Manufacturers, Agriculturists, and PEOPLE IN EVERY PROFESSION IN LIFE, will find the SCIENTIFIC AMERICAN to be of great value in their respective callings. Its counsels and suggestions will save them HUNDREDS OF DOLLARS annually, besides affording them a continual source of knowledge, the experience of which is beyond pecuniary estimate.

The SCIENTIFIC AMERICAN is published once a week; every number contains eight large quarto pages, forming annually a complete and splendid volume, illustrated with SEVERAL HUNDRED ORIGINAL ENGRAVINGS.

TERMS! TERMS!! TERMS

One Copy, for One Year	\$6
" " Six Months	\$4
Five Copies, for Six Months	\$4
Ten Copies for Six Months,	\$6
Ten Copies, for Twelve Months	\$12
Fifteen Copies for Twelve Months	\$22
Twenty Copies for Twelve Months	\$38

Southern, Western, and Canada Money taken at par for Subscriptions, or Post Office Stamps taken at their par value. Letters should be directed (post-paid) to
MUNN & CO.
136 Fulton street, New York.