

## Foreign Chemical Color Patents.

The following are condensed descriptions of several patents lately taken out in England, connected with the chemical art of manufacturing and applying colors:—

**Purples from Coal Tar Products.**—R. Smith, a well known chemist, has obtained beautiful colors, not only from aniline, but other bases found in coal tar. He takes a saturated solution of aniline, toluidine, xylidine, cumidine, or either of them in water, and adds a solution of chlorine in water. The proportions are from 1 to 3 equivalents of chlorine to one equivalent of the bases. The mixture is allowed to stand for twelve hours, when a black precipitate is found at the bottom of the vessel. This is washed with water, then mixed with a solution containing about five per cent of soda. In about two hours the solution is filtered. The precipitate is now boiled until the coloring matter is dissolved, when it is filtered, and a small quantity of the chloride of calcium added. This separates the coloring substance, which is collected in a filter, and washed well with cold water. The coloring matter is now dried, and may be afterward dissolved in alcohol, or wood spirit, and is then ready for dyeing or printing. The color so obtained is a bright purple, similar to that called *mauve*, which is obtained from aniline by mixing it with manganates, or the bichromate of potash.

**Coloring and Gilding Leather and other Fabrics.**—A patent has been secured by R. A. Brooman (being a communication from abroad) for an improvement in printing in relief, and in color, and in gold or silver. The material or fabric to be ornamented or colored is passed between a pair of rollers, one of which is metal, and has the desired pattern sunk or cut out on it, while the other roller is the counterpart, and is formed of gutta-percha or hard paper, with the pattern in relief. For printing with one color only, a distributing roller is placed in contact with the relief roller, and as it revolves, the color is supplied to its surface. For printing in several colors, the inventor uses what he terms "cliche" rollers of gutta-percha, which have their surfaces in relief. The fabric is passed through in a piece as in calico printing, and the pattern is printed in color, and embossed at one continuous operation. When portions of the pattern are to be gilded, the rollers print sizes or mucilage on the parts, and when the fabric passes through, the gilding is applied in powder dusted upon it. This adheres to the prepared surface, and when dried it may be run between pressure rollers to smooth it down.

**Panphiteic Acid—New Color Agent.**—H. Johnson has obtained a patent (communicated from abroad) of a peculiar new coloring matter obtained from several plants and vegetables. When vegetables are treated with steam, or boiling alkaline water, a coloring substance is extracted from them, and precipitated. This is placed in a stoneware vessel, mixed with nitric acid, and evaporated. The residuum thus obtained contains panphiteic acid, and it is now placed in distilled water, and washed. Resins, gums, wax, and all vegetable exudations may be converted into panphiteic acid, by first dissolving them in alcohol, ammonia, or bisulphuret of carbon, then submitting such solutions to the action of strong nitric acid; or the wax, &c., may be first treated with nitric acid, and secondly, with the alcohol or other solvent. Panphiteic acid produces a yellow dye, and by mixing with the prussiate of potash, it imparts a light color to silks and woollens, by simply dipping into a solution of it. Panphiteic acid, obtained from catechue, can be employed for dyeing shades of green on cotton, by preparing the fabric first in a bath containing a solution of nitrate of iron.

**Purple-blue Color.**—Mr. Johnson has also obtained a patent for a new purple-blue color, derived from indigo, and designed for dyeing and printing on textile fabrics. Take, say 20 lbs., of anhydrous bisulphate of soda, and heat it until it becomes fused. In this condition, about one pound of pulverized indigo is added to it gradually, and the mixture constantly stirred to prevent it from sticking to the bottom of the vessel, which may be a cast iron kettle. The mass now swells, and becomes very dark in color, and disengages a great deal of gas. By taking a little of it out occasionally upon a glass rod, and stirring it among some clear water in a glass tumbler,

the progress of the operation is tested; as soon as it colors the water a violet red, no more indigo should be added. The mixture should now be of a pasty consistency. About 147 gallons of hot water are then placed in a cask, and the mixture poured into it and actively stirred; this precipitates the coloring matter, which is a beautiful purple-blue, of a peculiar and brilliant color.

## FISHER'S CARRIAGE WHEEL.

The improvement here illustrated has received the commendation of persons familiar with the art of carriage making, and promises to be extensively introduced. In the description, similar letters represent corresponding parts in both figures.

The wheels, D, are composed of several metallic truss felloes, *f*, the tire, *t*, tubular spokes, *s*, with the binding rods, *c*, the hub, H, and its enclosing cap, C. The axle is composed of two spindles *s'* *s''*, and the shell or tube, B. The hub, H, is cast of brass or other suitable material in form of a cup or hollow cylinder, and has a stem in its center as seen in Fig. 2, with a square taper hole in it, to which the shank of the spindle, *s*, is fitted; being secured thereto by the nut, *h*, outside. The felloes represented by the several letters, *f*, are made in skeleton form, as seen in Fig. 1 and in segments, each being of a length corresponding with two of the spaces between the spokes, so as to receive one spoke in the middle, the felloes having a rim nearly as wide as the tire with a web, *w*, in the middle, extending from one spoke to another. The holes in the felloes which receive the outer ends of the spokes, *s*, are contracted so as to form the shoulder, *i*, seen in Fig. 2, against which the ends of the spoke rest.

The binding rods, *c*, are provided with a center sunk head *c'*. The tire is drilled to match the spoke holes in the felloes, and the rods, *c*, are put in through the tire, *t*; the hollow spokes, *s*, and the rim of the hub, H; receiving the nuts, *g*, on the inside of

Fig. 1

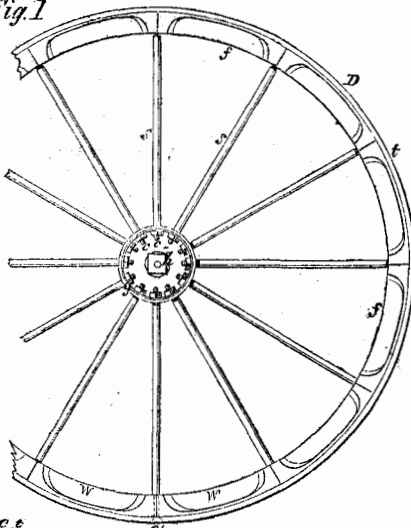
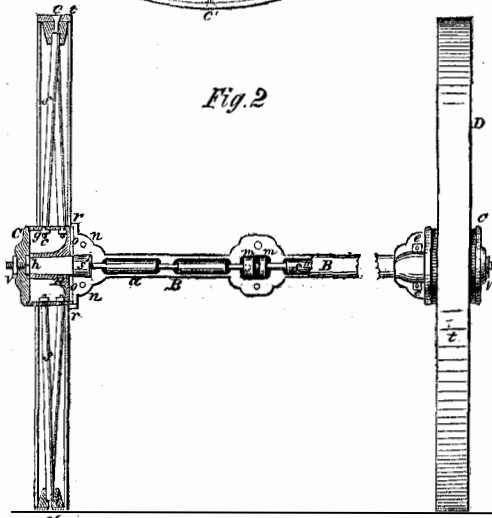


Fig. 2



the hub; by means of which arrangement the several parts are drawn together securely, and then the open end of the hub is closed by the ornamental cap, C, which is securely attached by the nut, *v*. The spokes, *s*, should be connected alternately with the outer and inner end of the hub as shown in Fig. 2. The tube of the axle, B, is made in two parts with recesses, *a a*, for the lubricating material. It is provided with flanges,

*n*, in the center and at each end, through which the bolts, *e*, pass to secure the parts together. On each end of the tube is a rim, *r*, which encircles the inner end of the hub, H, to prevent sand, &c., from working in between the revolving parts. A washer, *o*, is placed between the end of the tube and the hub, for the purpose of diminishing the friction of these parts. The spindles, *s'* and *s''* are made alike except at the ends where they meet, where the point of *s''* enters the end of *s'*, as shown by the dotted lines. The end of each spindle is enlarged to prevent the wheel from spreading apart; the enlargement coming against the shoulder, *m*, of the tube. The reach and side braces for connecting the front and rear axle may be attached to the tube, B, by the bolts, *e*.

By the construction of this wheel it will be seen that it is both light and strong, and as it is made wholly of metal, if it is kept properly painted, it will be very enduring.

The patent for this invention was procured through the Scientific American Patent Agency, December 18, 1860, and further information in relation to it may be obtained by addressing the inventor, J. P. Fisher, Rochester, N. Y.

# PROSPECTUS

OF THE

## SCIENTIFIC AMERICAN.

THE BEST MECHANICAL PAPER IN THE WORLD

SEVENTEENTH YEAR.

VOLUME IV.—NEW SERIES.

A new volume of this widely circulated paper commences about the 1st of January and 1st of July each year. Every number contains sixteen pages of useful information, and from five to ten original engravings of new inventions and discoveries, all of which are prepared expressly for its columns.

The SCIENTIFIC AMERICAN is devoted to the interests of Popular Science, the Mechanic Arts, Manufactures, Inventions, Agriculture, Commerce and the Industrial Pursuits generally, and is valuable and instructive not only in the Workshop and Manufactory, but also in the Household, the Library and the Reading Room.

The SCIENTIFIC AMERICAN has the reputation, at home and abroad, of being the best weekly publication devoted to mechanical and industrial pursuits now published, and the publishers are determined to keep up the reputation they have earned during the SIXTEEN YEARS they have been connected with its publication.

## To the Inventor!

The SCIENTIFIC AMERICAN is indispensable to every inventor, as it not only contains illustrated descriptions of nearly all the best inventions as they come out, but each number contains an Official List of the Claims of all the Patents issued from the United States Patent Office during the week previous; thus giving a correct history of the progress of inventions in this country. We are also receiving, every week the best scientific journals of Great Britain, France, and Germany; thus placing in our possession all that is transpiring in mechanical science and art in these old countries. We shall continue to transfer to our columns copious extracts from these journals of whatever we may deem of interest to our readers.

## To the Mechanic and Manufacturer!

No person engaged in any of the mechanical pursuits should think of "doing without" the SCIENTIFIC AMERICAN. It costs but four cents per week; every number contains from six to ten engravings of new machines and inventions, which cannot be found in any other publication. It is an established rule of the publishers to insert none but original engravings, and those of the first-class in the art, drawn and engraved by experienced persons under their own supervision.

## Chemists, Architects, Millwrights and Farmers!

The SCIENTIFIC AMERICAN will be found a most useful journal to them. All the new discoveries in the science of chemistry are given in its columns, and the interests of the architect and carpenter are not overlooked; all the new inventions and discoveries appertaining to these pursuits being published from week to week. Useful and practical information appertaining to the interests of millwrights and mill-owners will be found published in the SCIENTIFIC AMERICAN, which information they cannot possibly obtain from any other source. Subjects in which planters and farmers are interested will be found discussed in the SCIENTIFIC AMERICAN; most of the improvements in agricultural implements being illustrated in its columns.

## Terms.

To mail subscribers:—Two Dollars per annum, or One Dollar for six months. One Dollar pays for one complete volume of 416 pages; two volumes comprise one year.

## Club Rates.

Five Copies, for Six Months	\$4
Ten Copies, for Six Months	\$8
Ten Copies, for Twelve Months	\$15
Fifteen Copies, for Twelve Months	\$22
Twenty Copies, for Twelve Months	\$28

For all clubs of Twenty and over, the yearly subscription is only \$1.40. Names can be sent in at different times and from different Post-offices. Specimen copies will be sent gratis to any part of the country.

Southern, Western and Canadian money or Post-office stamps take at par for subscriptions. Canada subscribers will please to remit cents extra on each year's subscription to pre-pay postage.

MUNN & CO., Publishers,  
No. 37 Park-row, New York.

FROM THE STEAM PRESS OF JOHN A. GRAY.