

Business and Personal.

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Acme engine, 1 to 5 H. P. See adv. next issue. "U. S." metal polish. Indianapolis. Samples free.

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Steam Hammers, Improved Hydraulic Jacks, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

Screw machines, milling machines, and drill presses. The Garvin Mach. Co., Laight and Canal Sts., New York.

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The best book for electricians and beginners in electricity is "Experimental Science," by Geo. M. Hopkins. By mail, \$4; Munn & Co., publishers, 361 Broadway, N. Y.

For the original Bogardus Universal Eccentric Mill, Foot and Power Presses, Drills, Shears, etc., address J. S. & G. F. Simpson, 26 to 36 Rodney St., Brooklyn, N. Y.

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Send for new and complete catalogue of Scientific and other books for sale by Munn & Co., 361 Broadway, New York. Free on application.

Notes & Queries

HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters, or no attention will be paid thereto. This is for our information and not for publication. References to former articles or answers should give date of paper and page or number of question. Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all either by letter or in this department, each must take his turn. Special Written Information on matters of personal rather than general interest cannot be expected without remuneration. Scientific American Supplements referred to may be had at the office. Price 10 cents each. Books referred to promptly supplied on receipt of price. Materials sent for examination should be distinctly marked or labeled.

(4455) J. F. M. writes: Will you please explain the art of decalcomania? A. Decalcomanics or chromo transfer prints are made by brushing thin plate paper with flour or starch paste. When dry the paper is treated with a solution of gum or gum and starch. When dry it is well rolled. The printing is done on this paper by lithography, but the colors are worked in reverse order, the transparent colors being printed first. Either the surface of the print or the copy on which it is applied must be brushed with copal varnish. Apply, and remove the paper by sponging.

(4456) H. W. S. says: When was the first railway introduced into the United States and England, and also who built the first locomotive and where did it run in America? A. Railways were introduced in England, September 27, 1825; in Austria, September 30, 1828; in France, October 1, 1828; and in the United States, December 28, 1829. The first locomotive which ran in America was built at Stourbridge, England, and was imported for the Delaware and Hudson Railroad.

(4457) G. M. F. says: What employment is considered to be the healthiest and what the most unhealthy, or in other words, what class of people live the longest? A. The average ages for a few occupations are as follows: Judges, 65; farmers, 64; clergy-men, 56; lawyers, 54; merchants, 51; tailors, 44; editors, 40; machinists, 36; teachers, 34; clerks, 34; operatives, 32.

(4458) B. C. W. says: A number of years ago I saw a table in your paper giving the average number of days of sickness that could be expected by people of average health at different ages. Can you give this table? A. At 20 years of age calculate on 4 sick days yearly; at 20 to 30, 5 or 6 days; at 45, 7 days; at 50, 9 or 10 days; at 60, 16 days; at 65, 31 days; at 70, 74 days.

(4459) B. C. S. says: Kindly give the height of the ten highest towers and steeples of the world. A. Eiffel tower 1,000 feet, Washington monument 555, Cologne Cathedral 511, Hamburg, St. Nicholas 473, Strassburg 468, Rouen, Notre Dame, 465, Rome, St. Peter's, 455, Cairo, large pyramid, 450, Vienna, St. Stephen's, 449, Cairo, second pyramid, 446.

(4460) W. A. R. asks how to give a bright brass wheel the appearance of old bronze. A. A simple way is to wash the article with vinegar, and expose it to the vapor of ammonia, and repeat this until satisfied, or boil it in a solution of copper nitrate, or immerse it in a solution of iron nitrate and hyposulphate of soda in 8 parts of water.

(4461) I. A. wants a very deep black, and has been informed that Frankfort black is the blackest of all. He cannot obtain it, and asks how it is made. A. It is made in Germany, from the vine branches and other refuse of the vine culture, like charcoal is made from wood. There is, however, a better black now, the aniline black, about which draughtsmen agree that it is the blackest black known.

(4462) B. M. wishes to know what is used to make woven textures unflamable. A. The best is to wash them in a solution of sodium tungstate, next to this is ammonium phosphate, also calcium acetate and calcium chloride, equal parts dissolved in twice their weight of water; also solution of alum, of borax, sodium sulphate, and boracic acid, or a mixture of the last four have been recommended, as preventing change of color, and not stiffening the texture after drying.

(4463) J. B. asks for the best mixture used to protect iron machinery exposed to the atmosphere. A. 1 part pulverized graphite, 1 part lead sulphate, and 1 part zinc sulphate, rubbed up together and mixed well with 16 parts of linseed oil varnish and then boiled, form a coating which no water will wash off, and prove a reliable protection for all kinds of oxidizable metals, in all kinds of exposure to weather.

(4464) R. S., of New York, asks the simplest way to test if the ground combination coffee consists of a mixture of different kinds of coffee only or contains adulterations, such as burned sugar. A. When he mixes the coffee with cold water, and lets it stand for half an hour, he will find the burned sugar at the bottom, while pure coffee will float on the top. He will find that most of the so-called combination coffees are in fact adulterated coffees.

TO INVENTORS.

An experience of forty years, and the preparation of more than one hundred thousand applications for patents at home and abroad, enable us to understand the laws and practice on both continents, and to possess unequal facilities for procuring patents everywhere. A synopsis of the patent laws of the United States and all foreign countries may be had on application, and persons contemplating the securing of patents, either at home or abroad, are invited to write to this office for prices which are low, in accordance with the times and our extensive facilities for conducting the business. Address MUNN & CO., OFFICE SCIENTIFIC AMERICAN, 361 Broadway, New York.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

July 12, 1892.

AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

Table listing inventions with patent numbers and names of inventors. Includes items like Adjustable seat, Air ship, Alarm, Amalgamator, and many others.

Table listing inventions with patent numbers and names of inventors. Includes items like Copying press, Core barrel, Cornet, and many others.

Table listing inventions with patent numbers and names of inventors. Includes items like Nut lock, Paper anodipositor, Paper cabinet, and many others.