

ide of zinc) or other similar metallic oxide, not affected by it, to form a paint. Ground asbestos mixed into the strong aqueous solution also forms a good paint. It should be applied with a flowing brush, and rapidly. It cannot, of course, be mixed with oil paints.

From what kind of wood is the best charcoal, for preserving and purifying, made? A. Charcoal made from bones (bone black) is best for this purpose. If wood charcoal is to be used, the best is from willow or other light wood.

(36) E. H. says: If a steam boiler, having water at a proper height and steam at 60 lbs. pressure, should be closed so that no steam could escape, and fired enough to maintain the same pressure for 1 hour, would the water be any lower in the boiler at the end of that time than at first? Would there not be the same amount of water in the boiler? A friend claims that there would be less, as the water "would dry up." A. There would be no change in the amount of water.

(37) J. K. M. says: Please give me a recipe for reducing quicksilver to a fluid, for plating brass and copper? A. We do not understand you. Mercury (quicksilver) is liquid at ordinary temperatures. Brass and copper may be coated with mercury by applying the metallic mercury directly to the clean surface of the article to be coated. Or an aqueous solution of the bichloride of mercury (corrosive sublimate) may be used as a dipping bath. Corrosive sublimate is prepared by first converting the metal or its oxides into protosulphate of mercury, and then subliming this with common salt. Or the mercury may be converted into the red oxide by cautiously heating the sulphate, and this, dissolved in hydrochloric acid and the solution evaporated until crystallization takes place, gives the corrosive sublimate. In inexperienced hands, these reactions are dangerous.

(38) H. F. asks: Can you give me a recipe for making red aniline inks for rubber stamp use? How can I make red and blue ink for stamp ribbons? A. For red, dissolve alizarin or aniline red in warm glycerin. For blue, make a glycerin solution of aniline blue. These inks will serve for ribbons as well as for inking pads.

(39) W. H. asks: How can I convert the degrees centigrade to Fahrenheit and Fahrenheit degrees to centigrade? A. To convert centigrade to Fahrenheit, multiply by 9, divide by 5, and add 32. Thus: 100° C. x 9 = 900; divide by 5 = 180, + 32 = 212° Fah. To convert Fahrenheit to centigrade, deduct 32, multiply by 5, and divide by 9. Thus 212° Fah. - 32 = 180, x 5 = 900, ÷ 9 = 100° C.

(40) G. H. E. S. asks: 1. How can I produce musical sounds from glass tumblers? A. Moisten the fingers with water, and with their tips pressed firmly on the rim of the goblet, move them quickly around it so as to jar the glass and cause it to vibrate. You will probably succeed after a few trials. 2. What is made use of for moistening the fingers, to produce the sound? A. Water is generally used; but a better way is to moisten the finger tips with a drop of turpentine, and then rub them in finely powdered rosin. If rosin is employed, the goblet must be cleaned dry.

(41) W. L. Y. asks: How is French mustard prepared? A. Take salt, 1/4 lbs., scraped horseradish, 1 lb.; garlic, 2 cloves; boiling vinegar, 2 gallons. Macerate in a covered vessel for 24 hours, strain, and add sufficient flour of mustard.

(42) S. B. says: I have seen some chimneys on dwelling houses that sweat, or have the appearance of being wet. Please give the cause. A. Damp air when suddenly chilled precipitates water, as is seen by the result of the air of a room coming in contact with a pitcher of cold water; and from this cause the water coming from flues can be accounted for. When the flue is not used for a fire, it still acts as a ventilator, and as the warm air from the interior of the house comes in contact with the cold air falling from the top of the flue, it throws off its moisture and deposits it upon the interior surfaces of the flue.

(43) D. D. says: 1. Has a drum with two partitions, utilizing the heat from stove pipe, ever been tried? A. We are not aware of such a device for that purpose. 2. I am informed that, in London, dwellings are constructed with chimneys that return the smoke to the furnace, where it is burned, instead of throwing it out upon the open air. Can you give me any information in regard to the construction of such chimneys? A. We think there must be some mistake as to there being chimneys of such construction in use in dwellings; many factories in England are compelled by law to construct smoke-burning chimneys. We have not at hand the data required to give the precise nature of their construction. 3. What is the cheapest and best preparation for the preservation of shingles? A. Probably a wash of lime, tinted to suit.

(44) J. O. says: We desire information in the matter of conveying water in iron pipes. We wish to carry a spring running about 1 miner's inch (12 gallons per minute) of water a distance of about 5 miles over a broken country. The spring is at least 50 feet higher than the point of delivery. Two thirds of the first mile is a regular descent down a mountain side, fall in that distance being about 600 feet. The remainder of the distance is around the base of a mountain, broken up by gulches and ravines not very abrupt. The first two miles gradually descend 50 to 100 feet, thence gradually ascending to point of delivery. We propose to use 1 inch (inside diameter) iron pipe, lap weld, providing some means for the escape of air at every summit, but have been told that water cannot run through a pipe of that size for that distance if the grade was on a straight line from the spring to the point of delivery on account of the friction. Please tell us the best mode of conveying said stream of water? A. The greatest difficulty you have to encounter is in the siphons; but supposing these to work well and no leakage to the pipe, the water will discharge at the lower point notwithstanding the friction. The friction is in proportion to the velocity, but the velocity being reduced to a minimum, the water will flow to some extent; it will also soon acquire a momentum that will in a measure compensate for the friction, and if received in a reservoir it will finally discharge all the water supplied. Water will find its level, and the important condition here is that the point of discharge shall be lower than the spring.

(45) J. H. asks: What is the best way for testing a boiler, to find out how much fuel it burns? A. We think there is only one method that will be satisfactory, to weigh the fuel before putting it into the furnace.

MINERALS, ETC.—Specimens have been received from the following correspondents, and examined, with the result stated:

J. A. A.—They consist of sulphate of iron, together with some organic matter, the nature of which we cannot undertake to examine.—J. K. W.—No. 1 consists principally of clay containing a large quantity of sesquioxide of iron. It might be used with oil as a cheap paint. No. 2 is a variety of sandstone. No. 3 appears to be powdered basalt, with small crystals of quartz and sulphide of iron.

F. H. says: We have a lot of postal cards, on one side of which is printed a circular. Is there any cheap preparation that I can make which will take this printing off, and leave the card fit to write on?

COMMUNICATIONS RECEIVED.

The Editor of the SCIENTIFIC AMERICAN acknowledges, with much pleasure, the receipt of original papers and contributions upon the following subjects:

- On Prismatic Pictures. By J. C.
On a New Motor. By A. M.
On Glass for the Studio, etc. By T. G.
On Scientific Experiments. By J. P.
On Kaolin. By H. K. K.
On Blue Glass. By J. S. B.
On the Welding of a Mill Spindle Point. By H. B., by A. M. W., by W. J. F., by J. H. P., by R. L. C., by N. W. T., and by J. O.
On the Mountains in the Moon. By P. E. S.
On Early Locomotive Engineering. By J. V. B.
On Carelessness in Sawmills. By L. D. D.
Also inquiries and answers from the following:
H. M.—G. H. B.—A. W. S.—C. R.—L. S. B.—S. R. S.—J. W. F.—F. C.—H. R.—J. M.—C. A. S.—J. D. H.—J. H. C.

HINTS TO CORRESPONDENTS.

Correspondents whose inquiries fail to appear should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them. The address of the writer should always be given.

Inquiries relating to patents, or to the patentability of inventions, assignments, etc., will not be published here. All such questions, when initials only are given, are thrown into the waste basket, as it would fill half of our paper to print them all; but we generally take pleasure in answering briefly by mail, if the writer's address is given.

Hundreds of inquiries analogous to the following are sent: "Who sells a preparation for blasting tree stumps, which is safer than gunpowder, dynamite, or nitroglycerin? Who sells telephones, and what do they cost? Who sells rope belting, and what does it cost? Who sells platinum, nickel, tungsten, and aluminum? Who is the best mangling machine?" All such personal inquiries are printed, as will be observed, in the column of "Business and Personal," which is specially set apart for that purpose, subject to the charge mentioned at the head of that column. Almost any desired information can in this way be expeditiously obtained.

OFFICIAL.

INDEX OF INVENTIONS FOR WHICH Letters Patent of the United States were Granted in the Week Ending March 27, 1877, AND EACH BEARING THAT DATE.

[Those marked (r) are reissued patents.]

A complete copy of any patent in the annexed list, including both the specifications and drawings, will be furnished from this office for one dollar. In ordering, please state the number and date of the patent desired, and remit to Munn & Co., 37 Park Row, New York city.

Table listing inventions with patent numbers and names of inventors, including items like Advertising case, Agricultural socket, Air-cooling apparatus, etc.

Large table listing inventions with patent numbers and names of inventors, including items like Car coupling, Car door, Car dumping apparatus, etc.

DESIGNS PATENTED.

- 9,866.—COOK STOVE.—A. P. Corse, Troy, N. Y.
9,867.—PAPER BOXES.—L. P. Heath, Springfield, Mass.
9,868.—BALL ROOM FAVORS.—M. Keppler, N.Y. city, N.Y.
9,869.—MATCH BOXES.—F. Markoe, Philadelphia, Pa.
9,870.—PEN HOLDER, ETC.—P. Schrag, N.Y. city, N.Y.
9,871.—COOK STOVES.—G. Smith et al., Philadelphia, Pa.
9,872.—RANGE.—G. Smith et al., Philadelphia, Pa.

For the week ending March 30.

- 9,857.—TYPE.—D. W. Bruce, New York city.
9,858.—INSULATOR.—J. M. Brookfield, Brooklyn, N. Y.
9,859.—PLAYING CARDS.—J. H. Bingham, Hartford, Conn.
9,860.—GLASS JARS.—F. L. Bodine, Philadelphia, Pa.
9,861.—FORK HANDLES, ETC.—J. M. Culver, Wallingford, Conn.
9,862.—HEAD COMB.—P. J. Cullinan, New York city.
9,863.—ERASER PENCIL.—F. H. Holton, Brooklyn, N. Y.
9,864.—BURIAL CASKETS.—A. H. Nirdlinger, Rochester, N. Y.
9,865.—PICTURE EXHIBITOR.—J. W. Taft, Chicago, Ill.

[A copy of any of the above patents may be had by remitting one dollar to MUNN & CO., 37 Park Row, New York city.]