

Notes & Queries

A. F., of Minn.—It requires about one pound of water per minute in the boiler of an engine for a horse power. The amount of power required to grind 15 bushels per hour depends on the character of the machinery, either with large or small stones. With stones 4 feet in diameter, making 120 revolutions per minute, it takes 4½ horse power to grind 5 bushels of wheat per hour.

S. H. A., of N. Y.—There is no substance in the composition of German erasive soap which should render its suds injurious to plants and other vegetation. Those who have found it injurious, and to whom you have referred, perhaps used hot soap suds, which are injurious to plants, no matter what may be the composition of the soap.

J. A. S., of Ind.—It would take up too much of our space to describe the whole process of electroplating, and without engravings it would not be very intelligible. The art of electroplating was illustrated in Vol. III. (old series) of the *SCIENTIFIC AMERICAN*. The silver solution for plating is obtained by adding sulpho-cyanide of potassium to nitrate of silver. A large quantity of the sulpho-cyanide is used to hold the silver in solution.

D. W., of Ohio.—You state that your boiler "primes" very often, and that much dirt is carried over with the steam into the cylinder, injuring both the valve and the piston packing. You also state that there is no dome on your boiler, and you wish to know if a dome put upon it, with a pipe extending down to the bottom of the water in the boiler, would afford a remedy. We believe it would. Give your steam more room by putting a dome upon the boiler, and you will have much less priming than with the narrow steam space you now have in the boiler. You should endeavor to obtain pure water for feed, and then you would never be troubled with grit and sand in the boiler.

A. T. L., of Ga.—Chloride of silver is found native, and is called "horn silver." It is also produced artificially by adding common salt brine to a solution of nitrate of silver. It falls down in a white ousy deposit. Paper charged with a solution of chloride of silver is very sensitive to light, and is used by photographers in preparing sensitive paper for taking positive pictures.

E. J. D., of Pa.—The manufacture of the explosive compound to which you refer should be conducted in a remote country place. We do not know the cost of the machinery that would be required.

J. D. J., of Mich.—The reason why air heated in a furnace is very drying is because its capacity for moisture is increased. Warm air will hold more water than cold air. You will find this subject fully discussed on page 415, Vol. I. (new series) of the *SCIENTIFIC AMERICAN*.

G. W. R., of Ind.—There is no good practical work on milling and millwrighting suited to the present time. Information on this subject is much sought after.

C. D., of Mass.—It is our opinion that a powder engine would be more expensive to operate than a steam engine. We must tell you, however, in candor, that we have no faith in your success.

O. C. S., of N. Y.—Band saws, passing over two pulleys and working vertically, are quite old and not patentable. You will find a self-adjusting belt saw of this character illustrated on page 241, Vol. XIV. (old series) of the *SCIENTIFIC AMERICAN*.

M. A. H., of N. Y.—The fumes arising from the escape of tar and the washings of gas made from coal, are injurious to health, when inhaled; and no person should sleep in a house where such fumes are admitted from common sewers, as in your case.

B. S., of Md.—Your article will appear in our next.

J. M., of Vt.—As you have not described to us the process by which you make oil from peat, of course we cannot tell you whether there are other better methods or not. We do not know how much oil may be obtained from a cord of wet peat, nor what it would bring per gallon, in this city. If equal to coal oil it would bring one dollar per gallon at retail, and about 80 cents at wholesale.

A. H., of Conn.—The best way known to us for clarifying lard oil which has been used on machinery, is to heat it to about 210° Fah.; then filter it through charcoal.

P. R., of Iowa.—The gum which fills up the pores of burr stones, in grinding wheat, is vegetable gluten. It may be removed by a liberal application of hot water; but its removal cannot obviate the necessity of dressing the stone, as the surface becomes too smooth for grinding after being used for some time.

S. M., of Mo.—You can purchase "Brewster's Optics," or "Dick's Practical Astronomer" in St. Louis. Either of these works will give you the information desired about polishing lenses.

G. N., of C. E.—The "paying out" of a submarine cable through a ship's bottom is not now patentable. A patent was granted for this method of laying cables to Capt. Samuels, of this city, master of the clipper ship "Dreadnaught," in 1857.

W. S. C., of Pa.—Good wrought-iron tubing will resist the passage of mercury through it, at a pressure of 200 pounds on the square inch. Cast-iron would be rather porous for such a pressure. If the mercury is heated to 650° it will assume the gaseous condition, and would leak through tubes under such a pressure.

D. B. K., of Texas.—The models, drawings and specifications of all rejected cases are retained at the Patent Office.

D. A. W., of Mich.—Machines made under an extended patent must be stamped with the date of the original and the extended patent. The subject of artesian wells is discussed in this week's number.

O. H. P. W., of Ark.—The phenomena of electricity being generated by the leather belts used for driving machinery, is old and well known. In factories located in dry situations, you may witness a stream of electric light flowing from any belt, by holding your finger close to it.

R. M. P., of Mass.—The way to restore the temper to steel is, first, to harden it by heating it to a cherry-red color and dipping it in cold water; then the temper is to be drawn, by moderately heating it, when the brittleness diminishes as the temperature is raised. In this way you may give it such hardness as will adapt it to your purpose.

J. H. B., of N. C.—The application of the common slide valve to oscillating engines is, in our recollection, at least 20 years old, and how much older we we cannot say. We consider it now the most durable kind of valve for such engines, but its application with the valve gear for working it makes an engine much more expensive than the trunnion valves used by Reed and others, especially as those work very well.

MEXICO.—There is no white substance known to us used for pointing friction matches, that does not contain some phosphorus, and that ignites and burns freely when rubbed on a rough surface. Matches saturated with a white resin, such as balsam, or with stearine, can be ignited without phosphorus, by being tipped with the chlorate of potassa, the oxyd of zinc, sulphur and niter, but phosphorus is the most sure igniting agent for such matches, because it takes fire at such a low temperature.

B. J. V. M., of Pa.—We are obliged to you for the information regarding the "Tyler wheel," we have heard very favorable reports of it from various quarters, and will publish the account as soon as we receive the report of the experiments at Philadelphia, from Mr. Birkenbine, chief engineer. It will be the most interesting information regarding the performances of turbine wheels ever published in this country.

S. S., of Ohio.—We have never seen diamonds employed for dressing millstones, nor do we think that millers can afford to use them. They are principally used for cutting glass, drilling holes in rubies, china and crystal, and ruling medals, &c. The natural diamond is sometimes cemented in the holder with shellac, sometimes with soft solder fused by the blowpipe, and in some tools it is pinched in with pressure upon the brass of its seat. The diamond will stand the heat of a spirit lamp and a common blowpipe.

T. H., of Texas.—So far as we know the old-fashioned lime kiln is very efficient and as good as you can use. The fuel is laid in alternate layers with the limestone, and the carbonic acid is driven off by the heat, when the fuel is ignited. If possible the sides should be of brick or stone, and made quite thick in order to retain all the heat.

A. G., of Iowa.—In erecting the pyramids, the ancient Egyptians had not the remotest idea of employing them for protecting their lands from the sands of the desert. They were erected to preserve the memory of Egyptian kings and their families, and those who descended from the Pharaohs had recourse to these monuments to prove their royal pedigree. They were no doubt also associated with the ancient Egyptian religion.

E. J. C., of Miss.—An American bushel contains 2,150.42 cubic inches; a gallon, 231 cubic inches. A quart contains 57.75 cubic inches; therefore a bushel for measuring corn contains 35.50 wine quarts, very nearly.

E. P., of Pa.—We do not discover anything patentable in your invention. The device is nothing but a double action pump, without any special novelty, and the only thing, besides, to patent is the exhaustion of the air from the boiler, which is no new effect, as when a boiler cools down there is always a more or less perfect vacuum in it, according to the tightness of the valves, unless it is furnished with vacuum valves, and you have this vacuum when you start to raise steam again. You over-estimate whatever slight advantage there may be in exhausting the air from the boiler before getting up steam, for though steam is generated in a vacuum at a low temperature, such steam has no pressure, for so soon as pressure commences a vacuum no longer exists. We do not consider that any important result would be produced by your invention.

CLINTON, of N. Y.—Fulminating mercury is used for charging percussion caps. The best process for making this is the following:—Dissolve one pound of mercury in 10 pounds of nitric acid, of a specific gravity of 1.4, at a temperature of 130°, and pour the solution into a large vessel containing 10 pounds of alcohol of a specific gravity of 0.83. When the resulting effervescence has ceased, turn the mass upon a double filter fitted into a porcelain funnel, and wash it thoroughly with cold water; then dry it on plated stoneware at a temperature of 212°.

T. McK., of Va.—We, too, have heard that the hand may be placed on the bottom of a kettle in which water is boiling without burning the hand. If you will try the experiment, and find out whether it is really so, we will then see if we can find an explanation for it.

E. K. C., of N. Y.—The only way known to us of dissolving cotton is to convert it into collodion, as follows:—Put an ounce and a half of rectified ether in a two-ounce stoppered bottle; add ten grains of green cotton to it, and agitate for some time, when it will dissolve. You also wish to know how to make a perfectly white, elastic and insoluble substance resembling horn. The only way to make such an article, is by bleaching gutta-percha with chlorine. This is done by boiling gutta-percha in water containing some chlorine, or submitting it to the action of chlorine gas when in a dissolved state. This must be done in a close vessel.

O. T., of Ill.—Your idea that the open Polar sea and the aurora borealis are both caused by volcanoes does not appear to us very plausible. Still, you have as good right to your theory as anybody has to theirs.

G. R. H., of Mo.—You ask, "Is it true that, is built across a stream so far down that its top is on a level with the bottom of one above, a rain of nine inches (or any given depth) will raise the stream higher above the upper dam than it would before the lower dam was built?" We answer, it will not.

F. A. H., of Ill.—The use of mechanically compressed air as a motive agent attracted much attention in England about the year 1845, though not at that time, by any means, a novelty. It was tried on a railroad in the manner substantially as you propose, but could not compete in economy with steam. We, however, think it probable that it might be used to some advantage on city roads, and such has even been proposed recently in Philadelphia, but nothing more could be patented in this application of it than the construction or arrangement of the engine or apparatus.

Money Received

At the Scientific American Office on account of Patent

Office business, for the week ending Saturday, Jan. 21, 1860:—
 H. M., of Ohio, \$25; S. C. L., of N. Y., \$25; H. W. N., of N. Y., \$30; F. Y. C., of Ga., \$30; J. B. S., of Pa., \$25; G. C. D., of Ohio, \$30; A. B., of N. Y., \$100; M. B., of N. Y., \$55; H. F., of Vt., \$30; A. H., of Ill., \$30; J. S., of Mass., \$100; H. W. P., of N. Y., \$50; C. & L., of Ind., \$55; D. G., of Ill., \$30; O. S., of Iowa, \$30; H. E., of Pa., \$20; G. & W., of Mich., \$20; S. M. W., of Mich., \$30; J. J. P., of Ind., \$25; E. M., of Ind., \$30; L. C., of Mass., \$30; F. F. M., of N. Y., \$130; W. S., of N. Y., \$25; V. O. & I. R. S., of Pa., \$25; P. G. W., of Pa., \$30; F. D., of Conn., \$30; J. C. H., of Miss., \$25; F. & B., of Pa., \$30; J. C., Jr., of N. Y., \$30; T. H. W., of Mass., \$250; E. P. G., of Iowa, \$30; C. P., of N. J., \$30; L. G., of N. Y., \$30; H. & S., of R. I., \$30; W. W. P. & Co., of N. Y., \$22; C. G. M., of N. Y., \$30; F. D. B., of Mass., \$30; W. L. G., of N. Y., \$30; W. G. G., of Mass., \$25; J. B., of N. J., \$55; W. L. F., of N. J., \$25; J. L. R., of N. Y., \$30; R. & S., of Ohio, \$25; J. S. R., of Ill., \$10; G. P., of Pa., \$30; F. C. L., of N. Y., \$30; H. B. F., of N. Y., \$35; T. S. W., of N. Y., \$55; S. C. S., of Ill., \$30; A. H., of Iowa, \$15; E. P. M., of Mass., \$250; D. K., of Pa., \$30; F. J. H., of N. Y., \$30; L. F. F., of N. J., \$30; N. L., of Conn., \$10; T. H. McC., of Ill., \$30; R. R., of Vt., \$30; M. H., of Conn., \$30; F. & M., of Mass., \$25; B. E. O., of Ill., \$30; G. W. D., of N. Y., \$30; L. S. L., of R. I., \$30; W. E. F., of Mass., \$20.

Specifications, drawings and models belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, Jan. 21, 1860:—

V. O. & J. R. S., of Pa.; H. H. T., of N. Y.; F. C. L., of N. Y.; N. L., of Conn.; F. & M., of Mass.; W. L. F., of N. J.; W. G., of Miss.; S. C. L., of N. Y.; P. & H., of N. Y.; J. B. S., of Pa.; W. G. M., of N. Y.; W. S., of N. Y.; E. M., of Ind.; H. B. F., of N. Y.; G. B. C., of N. Y.; H. W. P., of N. Y. (3 cases); J. McC., of N. J.; P. M., of Ill.; J. J. P., of Ind.; R. & S., of Ohio; G. W. D., of N. Y.

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