

W. B., of Pa.—It is quite true, as you have stated, that the common lifting pump frequently clogs, when used for pumping up tanning liquors in which there is a sediment; but we do not think that an elevator, such as that used for lifting grain, could be used as a substitute. The buckets of the elevator would be liable to leak; still we advise you to make an experiment to satisfy yourself.

G. F. L., of N. H.—In generating hydrogen gas from water by the use of zinc and sulphuric acid, you should expel all the air from the receiver before you close it to retain the hydrogen, because the latter mixes with the oxygen of the air and forms an explosive mixture. Hydrogen gas can be generated under considerable pressure.

N. H., of Ga.—Tin is not a manufacture excepting so far as it relates to the smelting of the ores to obtain the metal. Tin ore is obtained in various parts of the world, and the process of smelting is well known to all metallurgists. The best tin comes from the Island of Banca, in the Indian Archipelago; but the greatest quantity is obtained from the mines of Cornwall, in England.

W. D., of Mass.—No advantage could be gained by making balloons double, to permit the escape of expanded gas from the inner to the outer one in the higher regions. To permit the free expansion of the gas, when the atmospheric pressure decreases in ascending, balloons are never filled to extreme bursting pressure, but are somewhat slack when they arise from the ground. The balloon is also left open at the bottom, so that it is scarcely possible that it can explode.

L. P. L., of N. Y.—The best substance for cementing glass ware is a strong solution of silicate of soda. Current bushes can be kept free from aphides by the application of water in which some tobacco has been steeped. A pound of tobacco will make 20 gallons of juice, which we have also found useful for sprinkling on rose bushes and grape vines infested with bugs.

I. M. H., of Vt.—To dye feathers red, clean them well by washing in soap suds, then boil them in a liquor with hyperic and a very little alum for about half an hour. Now take them out, wash and dry. You must use a clean tin dish for boiling them in, as an iron vessel would stain them black. A red color dyed in this manner is not so bright as if dyed with cochineal and the chloride of tin, but it is the most simple method for your purpose.

W. A. J. B., of Ga.—An explosion cannot take place from carbonized oil in a boiler by the gas mingling with the oxygen of the water, as you have stated, because there is no free oxygen in the boiler. Certain kinds of water produce priming in boilers, but the water is not explosive on that account. If you had furnished us (as no doubt you can do) with any facts on the subject, it would have been of interest to publish them.

E. F., of N. Y.—Galvanized metal is sheet iron coated with zinc. Pipes made of galvanized iron are not suitable to be buried in the ground to convey water. They cannot be employed as substitutes for lead pipe, and we could not recommend their use for domestic purposes.

D. N. C., of N. Y.—The resistance to the flow of water in pipes increases with the length, and is caused by friction. There are differences of opinion as to the appropriate length of feed-pipe, under a given head, for a water ram; but we do not see why a 7-foot feed-pipe, under a 7-foot head, is not better than a 30-foot pipe (as was recommended to you) under such a head.

G. B., of N. Y.—You are correct in the practice of farming by having a rotation of crops; but you are entirely mistaken in stating that, without adding fertilizers and by simple crop rotation, "the soil of England is capable of yielding fifty per cent more than it did fifty years ago." The farmers of England manure largely; and in the vicinity of New York two crops, every season, are taken off many of the fields by high fertilization. If, according to your theory, the constituents of the plants are not derived from the soil, why do you have a rotation of crops? why not plant the same crops year after year?

A. S., of N. Y.—After applying for a patent, you can give the privilege to any number of persons to construct any number of the machines or contrivances for which you are seeking a patent without prejudice to your rights after the patent shall have been granted. The selling of a machine of the kind you are endeavoring to patent will not affect the patent, nor your rights under it, unless such sale shall have taken place more than two years prior to the date of your application. There may be other circumstances amounting to an abandonment of your invention to the public, and which would prevent your right to a patent within less than two years, but the simple sale of one of the machines would not produce this effect within less time than is above stated.

S. F. L., of N. H.—We do not know that there is any limit to the pressure under which water will be decomposed by the battery, or by sulphuric acid and iron. No experiments have been made to settle such a point. A solution of copperas will not absorb hydrogen. You ask how large a battery of zinc and copper will be required to raise ten quarts of water to the boiling point. The question is indefinite. It is like asking how large a gas flame will be required for such a purpose. Any battery or gas flame will do it, provided you give it time and lose none of the heat.

C. T. M., of S. C.—Your subscription will expire with No. 10, Vol. V. We do not think you will find it practicable to use sulphuric acid in the way you indicate, in the manufacture of turpentine and resin.

C. B. E., of N. Y.—As the water in the boiler of a steam engine is evaporated into steam, the supply can be kept up only by forcing water into the boiler against the pressure of the steam, and this is done by means of the feed-pump. If either the receiving or delivery valve should become so deranged as not to permit the passage of the water, the pump of course would not work.

J. W. S., of Mass.—The leverage of a screw-driver varies with the length of the handle, if a cross handle; but the idea that it is affected by the length of the blade is absurd.

D. S., of Ill.—To mix oil with water, dissolve about one ounce of potash in a pint of water; then pour in a wine-glass full of sweet oil, and stir them thoroughly, when the mixture will become white and opaque, like sweet milk. These proportions will answer for any other quantity.

MONEY RECEIVED

At the Scientific American Office on account of Patent Office business, for the week ending Saturday, July 21, 1860:—

W. K., of Ill., \$25; C. M., of Wis., \$35; W. H. B., of Conn., \$25; M. M. C., of N. Y., \$30; W. M. K., of N. Y., \$30; M. & L., of Mass., \$30; C. C. G., of Ala., \$41; E. F. M. F., of Vt., \$55; J. G., of Mass., \$60; S. C., of Ga., \$30; C. & B., of Mass., \$35; J. B. McE., of Pa., \$40; A. S. B., of Iowa, \$28; F. C. K., of N. J., \$30; J. H. L., of N. Y., \$30; W. & W., of Ill., \$35; J. C. A., of Texas, \$25; J. M. T., of Pa., \$55; A. & B., of N. Y., \$250; W. M., of Minn., \$25; S. & C., of Cal., \$40; A. G. C., of N. Y., \$55; T. W., of N. Y., \$12; J. C. T., of N. H., \$30; T. & G., of Miss., \$25; B. S. P., of Ga., \$30; B. F. G., of Mass., \$30; A. W. J., of Conn., \$30; S. D. McC., of Ky., \$25; W. C., of Ohio, \$25; J. G. C., of Miss., \$20; H. L. McN., of Mass., \$30; T. S., of Cal., \$10; J. & C., of La., \$30; W. H. D., of Ill., \$25; C. P. B., of Ohio, \$35; J. E. M., of Ill., \$30; J. F. B., of N. Y., \$58; H. W. N., of Ala., \$80; J. H. H., of Ga., \$25; S. P., of N. Y., \$30; E. B., of N. Y., \$30; H. J. C., of Mass., \$250; J. B. S., of Mich., \$25; J. D., of N. Y., \$30; S. L., of Vt., \$25; J. J., of Maine, \$30; C. L., of Cal., \$45; J. W. C., of N. Y., \$165; L. S. G., of N. Y., \$30; A. & G., of N. Y., \$30; M. & B., of R. I., \$28; M. G. W., of Ill., \$30; H. R., of N. Y., \$25; A. R., of Ga., \$110; T. B., of Va., \$25; G. H. & S. F., of N. Y., \$15; J. D., of Ind., \$35; W. D. M., of Va., \$30; D. & C., of N. Y., \$25; J. S. S., of N. Y., \$25; F. A. H., of Ill., \$55; G. L. T., of N. Y., \$35; A. S., of N. Y., \$55; T. G. E., of Ill., \$30; J. H. B., of Ill., \$25; J. G. R., of Cal., \$25; L. A. B., of N. Y., \$30; H. W. U., of Ala., \$30; A. A., of Conn., \$25; J. G., of N. Y., \$25; J. C. A., of N. Y., \$57; G. P. R., of Mass., \$20; I. C. T., of Pa., \$25; A. A. R., of Mass., \$30; D. F., of Ohio, \$25; H. N., of N. Y., \$30.

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

C. P. B., of Ohio; W. H. B., of Conn.; J. H. H., of Ga.; B. A. G., of Mass.; G. W. R., of N. Y.; J. R., of N. J.; C. & B., of Mass.; A. S. B., of Iowa; J. C. A., of N. Y.; J. C. T., of Tenn.; D. F., of Ohio; L. S. G., of N. Y.; J. I., of Vt.; J. S. L., of N. Y.; W. M., of Miss.; C. M., of Wis.; T. W., of Ga.; J. B. S., of Mich.; G. L. T., of N. Y.; J. B. McE., of Pa.; J. J., of Maine; W. C., of Ohio; J. G. W., of N. Y.; J. H. B., of Ill.; J. E. L., of N. Y.; J. C. A., of Texas; J. G. R., of Cal.; J. G. T., of N. Y.; W. K., of Ill.; T. & G., of Miss.; S. G., of Ill.; M. G. W., of Ill.; H. R., of N. Y.; S. L., of Vt.; S. D. McC., of Ky.; A. S., of N. Y.; H. W. N., of Ala.; D. & C., of N. Y.; A. A., of Conn.; W. & W., of Ill.; J. F. B., of N. Y.

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