

PUMPING WATER FOR LONG DISTANCES.—M. H. P. asks, through your journal of October 28th, information about the mode of conducting water from his well, 145 feet from his house. A suction pump will raise water a height of 33½ feet (perpendicular); 10 feet horizontal is equal to one foot perpendicular. So that the same pump will bring water 333½ feet horizontally, although in his particular case it will not operate, because he has 145 feet horizontal and 20 feet perpendicular, which makes over 34 feet. There will be great difficulty experienced in exhausting the air out of a long pipe; the best way is to have your packing boxes very tight and charge your pump. For a long horizontal pipe for pumps, wood will not give much satisfaction. Lead is best and cheapest. Query No. 7, in same paper, in reference to air pump, interests me. I would like to hear from somebody about it.—M. W. Q., of Mo.

FLOATING OF SOLID IN MOLTEN IRON.—In answer to the query of S. H. W., concerning the cause of solid floating on molten iron, permit me to suggest that the probable cause is not the attraction of cohesion in the latter, as has been suggested; although this might prevent it from becoming immersed, but when once immersed it is evident that it would not cause it to rise to the surface. Hence, there can be but one cause, namely, the solid must be less dense than the molten—an apparent exception to the laws of expansion and contraction by heat and cold, but no real exception. Another force is evidently brought into play, which masks the regular action of the heat, and there can be little question that the play of crystalline forces interferes with the result; since, in all liquids which crystallize when they congeal, as water, bismuth, iron, etc., as they approach solidification, there is a rearrangement of the molecules with enlarged interspaces and consequent expansion.—C. E. S., of—

HOW TO CLEAN SHELLS.—Make lye by boiling strong ashes, allow it to settle; pour the lye over the shells, and boil them six or seven hours, or longer if they are large; then soak and wash often in fresh water.—E. E. S., of—

FRENCH POLISH.—Let W. B. W. take of ordinary shellac two ounces, bruise it as fine as flour, put it into a pint of spirits of wine in a bottle, and shake it continually until dissolved. It will take a good half hour to dissolve it. Then strain it, and if too thick, add more spirits of wine. Do not use too much raw linseed oil, as it causes the polish to be spotted with white, especially when finishing off the work. The spirit should not be too strong, lest it should crack, and not too weak, lest the work should not be good.—P. K., of N. Y.

INCORUSTATION IN BOILERS.—E. L. F. asks how he can prevent incrustation in his boilers. The only effectual remedy is to blow out frequently. I blow out once a week at least ten per cent of the water in the boilers. It should be done while the water is at rest, that is, before starting in the feed water. Our boilers were badly incrustated. We loosened the scale with chisels and kerosene oil, and after running them a year as above, they came out as clean and bright as could be.—S. H., of N. Y.

SPONGY PLATINUM.—T. M. can make platinum sponge by the following process: Dissolve platinum, by the aid of heat, in a mixture of three parts nitric and five parts muriatic acid, avoiding great excess of acid. To this solution add a strong solution of muriate of ammonia; collect the resulting precipitate on a filter, and when nearly dry, form it into a mass of the shape desired for the sponge. Heat this to whiteness on charcoal, with the blowpipe or otherwise, and the platinum remains in the spongy state. Its characteristic properties may be restored, when lost, by simply heating it to redness.—C. L. R. S., of D. C.

SCALE IN BOILERS.—Let E. L. F. get some cow or ox feet, just as they are cut off in the slaughterhouse, put them in a wire net fine enough to detain the small bones from getting into the blow-off pipe, into boiler. He should use five feet to a six horse boiler, and he will have no further trouble with scale in his boilers. If he has glass gauges, he will find that they will not make the water foam. I have used them for upwards of ten years in plain, Cornish, and multitubular boilers. According to the quality of water, he will have to replace them every two or three months. He can clean a boiler in about half an hour after he gets it once clean.—I. A., of Pa.

PREVENTING GRANULATION OF SUGAR.—In answer to Query No. 5, in SCIENTIFIC AMERICAN, Nov. 4th, I have to say that confectioners add a little cream of tartar to the sugar to prevent granulation.—I. I. H., of Ky.

DESTRUCTION OF TREES.—Take rain water as much as necessary to kill a given number of trees; and use as much sulphate of iron in it as the water will dissolve when hot.—A. K., of Pa.

Examples for the Ladies.

Mrs. M. L. Sloper, Cottonwood Falls (formerly of Leavenworth), earned, in dressmaking, with a Wheeler & Wilson Machine, in 6½ months, \$13,340; in 1866 she earned \$4,250; in December, 1867, \$435. The machine has been constantly employed since 1861 without a cent for repairs.

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Land sufficient for the purposes of any good manufacturing business, and most admirably located on the Poughkeepsie & Eastern R. R., with plenty of water for steam purposes at hand, and only fifteen minutes' walk from the center of the city, will be given to any parties who meet the views of the owner. Address P. O. Box 534, Poughkeepsie, N. Y.

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Use Soluble Glass for fireproofing Wooden Pavements, Shanties, R. R. Bridges—also as common hardening Mortar and Cements, makes most durable Stove and Foundry Putty, Iron Cement. Apply to L. & J. W. Feuchtwanger, Chemists, 55 Cedar street, New York.

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Francis Schleicher, Consulting, Analytical and Manufacturing Chemist. Laboratory, Newark St., between Jackson and Harrison St. P. O. Box 172, Hoboken, N. J.

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Portable Farm Engines, new and beautiful design, mounted on Springs. Compact, light, and efficient. Send for descriptive circular. Mansfield Machine Works, Mansfield, Ohio.

For the best 15 inch Eng. Lathes, Bench Lathes, or Friction Pulleys, address John R. Abbe, P. O. Box 345, Providence, R. I.

75 horse power Engine and Boiler, complete, for sale cheap. R. H. Norris, near West Street Bridge, Paterson, N. J.

Kelley's Chemical Metallic Paints, \$1, \$1.50, \$2 per gallon mixed ready for use. Send for cards of colors, &c., 116 Maiden Lane, N. Y. For sale: A Geometrical Lathe for heavy square, round or oval engine turning and combination wave line work. A. Schaefer, 82 Forsyth Street, N. Y.

I want the address of every cabinet maker and every painter in the world. J. Henry Symonds, P. O. Box 57, Boston, Mass.

Wanted—a sober, industrious man, who is fully competent to take charge of a sash, blind, and door factory. Address Wm. B. Houghton & Son, Little Falls, N. Y.

Stencil Tools & Steel Letters. J. C. Hilton, 66 W. Lake st. Chicago To Boiler Makers—Water Gauges sold cheaper by us than any other House in the Country. Holland & Cody, No. 8 Gold st., N. Y.

Baxter's Adjustable Wrenches fit peculiar corners where no other will work. All first class mechanics need one. Baxter Wrench Co., 18 Park Place, New York.

Taft's Portable Hot Air Vapor and Shower Bathing Apparatus. Address Portable Bath Co., Sag Harbor, N. Y. Send for Circular.

Shoe Peg Machinery. Address A. Gauntt, Chagrin Fall, Ohio.

We will remove and prevent Scale in any Steam Boiler, or make no charge. Geo. W. Lord, 107 Girard ave., Philadelphia, Pa.

Builder's Scaffold—Patent for Sale—For further particulars, address Redick & Kunkle, Butler, O.

For Steam Fire Engines, address R. J. Gould, Newark, N. J.

The Oil used on all the Machinery at the A. I. Fair is from Chard & Howe, 134 Maiden Lane, New York. Ask them how it works.

Walrus Leather, for Polishing Steel, Brass, and Plated Ware. Greene, Tweed & Co., 18 Park Place, New York.

Kelley's Pat. Petroleum Linseed Oil, 50c. gal., 116 Maiden Lane.

Turkey Boxwood pieces for Sale, suitable for engravers and fancy turners' use. Address Stephens & Co., Riverton, Conn.

All kinds of Presses and Dies. Bliss & Williams, successors to Mays & Bliss, 118 to 122 Plymouth St., Brooklyn. Send for Catalogue.

The best lubricating oil in the world is Winter pressed Sperm. Sold in bottles, cans, and barrels, by Wm. F. Nye, New Bedford, Mass.

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Over 1,000 Tanners, Paper-makers, Contractors, &c., use the Pumps of Heald, Sisco & Co. See advertisement.

For Solid Wrought-iron Beams, etc., see advertisement. Address Union Iron Mills, Pittsburgh, Pa., for lithograph, etc.

Mining, Wrecking, Pumping, Drainage, or Irrigating Machinery, for sale or rent. See advertisement, Andrew's Patent, inside page.

Improved Foot Lathes, Hand Planers, etc. Many a reader of this paper has one of them. Selling in all parts of the country, Canada, Europe, etc. Catalogue free. N. H. Baldwin, Laconia, N. H.

Blake's Belt Studs. The cheapest and best fastening for Rubber and Leather Belting. Greene, Tweed & Co., 18 Park Place, N. Y.

Dickinson's Patent Shaped Diamond Carbon Points and Adjustable Holder for dressing emery wheels, grindstones, etc. See Scientific American, July 24 and Nov. 20, 1869. 61 Nassau st., New York.

Railway Turn Tables—Greenleaf's Patent. Drawings sent on application. Greenleaf Machine Works, Indianapolis, Ind.

Peck's Patent Drop Press. For circulars address the sole manufacturers, Milo, Peck & Co., New Haven, Ct.

Declined.

Communications upon the following subjects have been received and examined by the Editor, but their publication is respectfully declined:

BOILER EXPLOSIONS.—J. F. K.—R. A. W. IS THE BRAIN THE ORIGIN OF THOUGHT, ETC.?—B. H. NAMES OF PLACES.—C. I. NARROW GAGE RAILWAYS.—D. O. PAINE'S ELECTRO-MOTOR.—J. E. S. PROLONGING LIFE.—PUBLIC SUPPLY OF POWER.—F. G. W. ANSWERS TO CORRESPONDENTS—A. F. C.—D. D.—E.—G. E. D.—G. H.—G. J.—H. R. J.—J. B. Jr.—J. H.—M.—M.—M. H. J.—N. B. C.—N. D.—S. B. F.—S. S.—T. A. R.—T. C.—W. P. M. QUERIES.—E. B.—G. C.—G. P.—T. B.—S. L. J.

Inventions Patented in England by Americans.

From October 17 to October 23, 1871, inclusive. (Compiled from the Commissioners of Patents' Journal.) AUGERS, ETC.—J. Swan, New Haven, Conn. BATTERY.—L. Bastet, H. Seligman, Tarrytown, N. Y. COUPLING.—W. Washburn, Brooklyn, N. Y. INKSTAND, ETC.—S. C. Catlin, Cleveland, Ohio. LIQUID METER.—T. A. Curtis, Springfield, Mass. LOOM.—J. Short, New York city. PENCIL, ETC.—J. Reckendorfer, New York city. PURIFIER.—E. Duffee, Haverhill, Mass. STEAM PUMP, ETC.—W. E. Prall, Washington, D. C.

Queries.

[We present herewith a series of inquiries embracing a variety of topics of greater or less general interest. The questions are simple, it is true, but we prefer to elicit practical answers from our readers.]

1.—CALCINATION OF CHALK.—Will some of your readers oblige a Havana correspondent with a description of the process of calcination, pulverization, and sifting of sulphate of lime, (chalk) and also give a description of the apparatus used? Are the kilns reverberatory furnaces or open air constructions? What would the appliances, for turning out two or three hundred barrels of chalk a day, cost?—S. G.

2.—PREVENTION OF RUST.—What can I coat my smoke-stack with to prevent its rusting? I have used red lead and oil, but it did but little good.—L. X. W.

3.—CASE HARDENING.—Will some kind reader favor me with the process, in detail, for case hardening finished set screws, nuts, etc? Is there any way of hardening a large lot of the above at one time, by a bath, solution, or any other mode available in such a case?—E. N. G.

4.—FILTER IN CISTERN.—What is the best method of constructing a filter to a cistern? What porous material is best to be used as a bottom to such a filter, that is, to support the charcoal, gravel and sand? R. B. M.

5.—MITER OF HOPPER.—Will some one give me a brief yet scientific, rule for laying out the miter of a hopper?—N. B. B.

6.—SETTING SAW.—Can some one tell me how to file and set a small circular saw, so as to cut very smoothly, and be used equally well for splitting and cross-cut sawing?—J. H. M.

7.—CANKER IN THE MOUTH.—I would like to enquire if any of your correspondents can tell me how to cure canker in the mouth? I have tried alum, borax, goldthread, tannin, sulphate of copper, nitrate of silver, colts' foot, carbolic acid and homœopathic doses of *hydrastis canadensis*; but none of these do any good. I am willing to try anything that is recommended in good faith. For six weeks I used no drink excepting a decoction of red clover tops, but all to no purpose.—F. S. C.

8.—PREVENTION OF FERMENTATION.—Will some one tell me how to keep new cider from fermenting, without doctoring it with chemicals of any kind? Can I do it by keeping it at a temperature nearly down to the freezing point? And should it be barrelled tight from the air?—F. S. C.

9.—EXPANSION OF BELT.—A. and B. have got into a dispute. A. says a belt is tighter in wet weather than in dry; B. says it is tighter in dry weather. Will some one please say which is right?—G. W. F.

10.—BRAZING FOR STEEL.—What is the strongest and best steel brazing, and what flux is used?—M. B. H.

11.—PREVENTION OF SCALE IN BOILER.—What is the best article used to keep steam boilers from scaling? I have tried a great many things, but to no effect. The water used is mostly from a well in a limestone rock. My boiler is tubular, for a ten horse engine. It has scaled considerably already. Any information in regard to this matter will be thankfully received. Is tannate of soda a good article for the purpose? If so, how much should be used at a time, and how often?—C. M.

12.—PREVENTING INCORUSTATION IN BOILER.—I notice in a late number of SCIENTIFIC AMERICAN, an article recommending the use of tannate of soda to prevent incrustation in boilers, etc. Can any one tell me the quantity required per horse power, and where the article can be obtained?—S. P.

13.—CEMENT FOR AMBER.—Will some one please give me a receipt for a cement to mend amber?—J. R.

14.—BRONZING ORNAMENTS.—What is the simplest method for re-bronzing ornaments?—J. R.

15.—FINISHING CROSS HEADS AND PINS.—Will some of your correspondents give me information of a machine for, or any good method of, dressing off and finishing cross head pins or wrist pins, the cross head and pin being cast in one piece, similar to locomotive cross heads? The pin, when done, must be true and square, and, in fact, superior to hand work. I want to finish a good range of sizes, say for from 5 to 50 horse power engines.—W.

16.—BLASTING UNDER WATER.—I have some 6,000 yards of rock to remove under twelve feet of water; average depth of rock to be taken out, about two feet. Can any one, who has had practical experience in removing rock under water, inform me if duallin would act effectually in such a situation; and what would the probable cost per yard be?—F. A. W.

17.—WEAR OF VALVE SEAT.—Why does a valve seat wear concavely where a valve travels over the whole seat every semi-revolution of the eccentric?—W. C.

18.—INCREASING POWER.—Having a rather limited steam power, to drive a thirty inch circular saw, I wish to be informed by some reader of the SCIENTIFIC AMERICAN if it will increase the power of the saw to attach a fly wheel, say thirty-six inches diameter, with a narrow round rim, weighing about seventy-five pounds, to the saw shaft, on the opposite end from the saw.—E. K.

19.—DYE FROM POKE BERRIES.—Can any one of your readers tell me how to make the coloring of poke berries (*phytolacca decandra*) permanent enough for carpeting?—E. E. S.

20.—PREVENTION OF RUST.—Can any of your readers inform me by what means rust can be prevented on screwed iron articles? I use a solution of soap water and oil in screwing, and wash with soap water heated. Will keeping said articles in a basement (though a dry one) cause the rust?—I. K. F.

21.—WHITENESS FOR OUT DOOR USE.—I want a wash, white or nearly so, for lime stucco, outside, that will not crack, peel, or wash off, and will make the walls impervious to water.—W. T. S.

22.—PURIFYING KEROSENE OIL.—Is there any method, by which kerosene oil, which has been used for removing whale oil and grease from different articles, and is very black and dirty from the foreign elements held in solution, may be redeemed for illuminating purposes, either by filtering, or other process? We daily destroy many gallons in this use, which, if it could be reclaimed, would be a great saving. Soda and potash for cleaning are not as preferable to us as kerosene. Benzine is too dangerous; and therefore if some of your readers will "post" us, we shall feel indebted for the favor.—N. L. & Co.

23.—FORM OF PUNCH FOR CUTTING METALS.—What is the best punch to use in punching machines, for punching metals, like boiler plate? Should the punch be straight, or taper, and if made to taper, which way?—A. M. S.

24.—BLACK COLOR ON BRASS WORK.—Will some one of the many readers of the SCIENTIFIC AMERICAN inform me how the black color on brass work, for optical instruments, is produced?—C. D.

APPLICATIONS FOR EXTENSION OF PATENTS.

STEAM CUTTER.—David H. Mumma, Harrisburgh, Pa., administrator of Jacob H. Mumma, deceased, has petitioned for an extension of the above patent. Day of hearing, January 10, 1872.

CARPET BEATING MACHINE.—Joseph Harris, Jr., Boston, Mass., and Daniel Holmes, New York city, have petitioned for an extension of the above patent. Day of hearing, February 7, 1872.

FLASKS FOR CASTING WHEELS.—Frederick Nishwitz, Belvidere, N. J., has petitioned for an extension of the above patent. Day of hearing, Jan. 7, 1872.