

this reaction should always be kept in view. Phosphate of soda and chloride of barium, alternately applied, appear to yield, upon the whole, the most satisfactory results.

EXTRACTION OF OIL BY PETROLEUM.

The extraction of oil from seeds, by some volatile solvent instead of the usual hot or cold press, is constantly receiving more attention, partly because the yield of the extracted oil is found to be greater, and partly because the quality of the oil is better, without any diminution in the value of the cake for fodder. The light oils of petroleum appear to have certain advantages over bisulphide of carbon for the preparation of table and lubricating oils. In the treatment of the cacao bean, as the theobromine is not soluble in petroleum, all of the butter is removed without destroying the aroma, and the broma remains in the residue. Petroleum can be applied to the removal of fat from bones, and it leaves the bones perfectly clean and white, in which condition they are admirably adapted to knife handles, and take colors more readily. The oil and fat can at once be applied to the manufacture of soap or candles without further purification, and the yield of glue is increased. Several patents have been taken out for contrivances for extracting oils by means of petroleum, naphtha, and bisulphide of carbon; but they do not appear to be well known, as the fat boiling nuisance still continues. It is a curious spectacle to witness the wasteful and disgusting method, of recovering fat, pursued in large cities, when a cheaper and more economical way is at hand. So also in pressing linseed, a large amount of oil remains in the cake, which would be saved if the extraction were to be conducted in a chemical way. We again call the attention of inventors to this important subject.

RECENT PATENT DECISIONS.

In the matter of the application of Timothy F. Taft for the extension of letters patent No. 18,025, for shears for cutting metal, granted him August 18, 1857.

The decision first prepared in this case was as follows:

The invention sought to be extended consists of shears for cutting metal, so constructed that the upper edge of the movable blade constitutes the inclined plane on which the wheel travels, while the wheel itself is compelled in its movement of translation to follow a horizontal direction by means of a horizontal plane in the opposite side of its circumference, and a supplementary wheel interposed between them. The bearing surfaces of the two wheels and two planes are plain, and, to avoid slipping from want of proper traction, the wheels and planes have severally cogged plates attached to them which mutually interlock.

Affidavits have been filed of three intelligent and apparently disinterested persons, as well as the affidavit and statement of the patentee, and they all agree in representing the machine in question as enabling a man to accomplish one third more work in a given time, and as doing the work better and with more ease than any other machine with which they are acquainted.

The examiner in this case reports:

"After a careful examination of the application, it is believed that the invention was new at the time the patent was granted; that it is valuable, and important to the public; that the patentee has not been reasonably remunerated, and that his failure to be so remunerated has arisen from no fault or neglect on his part."

From the examination of this case, I am satisfied all the requirements of the law have been complied with, as relates to extension, and accordingly the prayer of the petitioner is hereby granted.

Subsequently this decision was recalled, for reasons which appear below, and a new one rendered, as follows:

LEGGETT, Commissioner:

Upon the hearing of this case, it appeared, upon the records of the Office, that the patentee, Timothy F. Taft, had assigned all his interest in and to said patent, including the extension, if granted, to one Lucius W. Bond, by assignment, dated November 22, 1867.

I called the attention of the attorney to this matter, and informed him that the Office would not extend patents for the sole benefit of assignees, and could not, under the law. He then said that said assignment was given to Bond in the nature of a mortgage, to secure borrowed money, and that on June 13 last, Taft had settled the matter, and on that day the patent was reconveyed to Taft; but that he had neglected to have the reassignment recorded. The attorney then took the reassignment from among his papers, and had it put upon record, and assured me that it was a *bona fide* document, and that the whole title was then in Taft, and upon this assurance and belief the decision extending the patent was made.

As soon as the decision was made, the attorney took from his pocket another assignment from Taft to Bond, also bearing date June 13, 1871, and filed the same for record, thereby falsifying the statement that the title in the extension was in Taft, and further showing the reconveyance to Taft was a mere fiction to deceive the Commissioner of Patents.

The records of the Office further show, that on the 22d June, 1871, Taft also assigned all his right, title, and interest in the extension, to one Elizabeth H. Taft. He comes to the Office for an extension, and assures the Commissioner that he has, in his own right, the entire interest in the extension, while, in fact, the records of the Office show that, in June last, he sold for a merely nominal price to two distinct persons, by two separate assignments, all his interest in the extension, if granted.

In view of these facts, the former action of the Office granting extension in this case is revoked, and the extension is refused.

DAVID H. MORRISON'S PATENT.

In the matter of the application of David H. Morrison for letters patent for an improvement in iron bridges.

CARTER, Chief Justice:

In the case of the petition of David H. Morrison for improvement in iron bridges, on appeal to this court from the decision of the Commissioner of Patents, the court have come to the conclusion to grant him a patent. The whole case is to be found in one consideration outside of the opinion of the Commissioner of Patents; or rather, is to be found inside of it.

"The applicant originally presented four claims," says the Commissioner, "and exception was taken to the first and fourth. The fourth was erased, and the first is now the only one in controversy. It reads as follows: 'The construction of the arch or top chord of the bridge by the use of the iron I beam, when arranged therein with its double flanges in vertical plane, substantially as described, for the purpose specified.' This claim was rejected by the primary examiner upon references which the board of examiners-in-chief do not think pertinent; but they go on to declare, in effect, that, the

I beams having been used in bridges or other structures with double flanges in horizontal planes, it did not involve invention to arrange them with the flanges in vertical planes."

The Commissioner proceeds:

The applicant suggests certain advantages which will arise from his new arrangement, among others that the frames and truss work can be more readily attached to the arch or top chord, and especially by this arrangement the tendency to lateral flexure is resisted without the necessity of cross timbers, while the tendency to vertical flexure, being less considerable, is not increased.

These advantages, I am of opinion, are substantial, especially the latter; and if the applicant was the first to obtain this result, the improvement might well be construed to be not for turning an I beam upon its side, but for the construction of the arch or top chord of a bridge, with a broad horizontal web to resist lateral flexure. This, if new, is useful, and I think patentable. It is, however, not new.

The arch exhibited in the withdrawn application of Penniman & McGlacklin shows a broad, horizontal web, which possesses the advantage of applicant's beam, and differs in nothing from his, except the fact that the upper flanges on each side are wanting. The web and lower flanges, as represented, perform the precise office of the same part in applicant's. The upper flanges merely strengthen the whole structure, and this reference anticipates the principle which is supposed to underlie the alleged invention, and, as the idea itself is old, reduces it to a mere application of an old device to an old purpose.

Now, the Office or the Commissioner disposes of everything connected with this patent except one reference, and that is the reference of the rejected application of Penniman & McGlacklin. He says that, inasmuch as the invention is anticipated in the one referred to, which was rejected, it is not new.

Now, this question of identity, or of difference, is a question of fact—a question in mechanics—and one to be determined by inspection. There is no other way of reaching it. The model of the rejected patent has been before us, and it has been fully examined and considered by us. From such examination, which was a careful and a thoughtful one, the court have come to the conclusion that it is not like the one for which a patent is now being sought, either in form or principle, or indeed in the mode of manufacturing. The only resemblance between the two consists in the former being made to perform, under a different arrangement, the same office that this arch is made to perform.

In the first place, the reference made here is a reference to a cast iron bridge—a bridge that could not be made of wrought iron. It is not an I beam in any sense, and could not be tortured into one. It is not the web of the I beam. Instead of the web between the flanges on either side, it is an open chamber, with links connecting it. It is not uniform in its size. The principle of that arch is a broad base at either bearing with a view of preventing lateral flexure, with a gradual withdrawal of the base until you arrive at the center of the arch. So that this support, the support of the vertical position of the arch, is designed to be maintained by this gradual spreading out of the arch to its base. Here the arch is uniform, and does not depend on such contrivance for its support.

Again, that is an arch, made in the form in which it is made, that could not be forged out of wrought iron. No machinery could make it; at least, the rolling process, by which wrought iron is reduced to shape in the I beam, could not be applied to it. It is not in the power of mechanics to roll out wrought iron in a diverging or expanding form; and grooves and dies of the roller must necessarily be uniform. Neither in the material, the form, the conception of the arch, nor the design of its peculiarities, is it identical with the contrivance in the application before us.

And that disposes of the whole case, for the Office enlightens us that, in every other particular, this application is worthy of a patent; and in this particular the Commissioner, although a very able man, an experienced patent lawyer, and a sharp, quick observer, must have come to this conclusion without looking at the reference that brought him to it.

The decision of the Commissioner is reversed, and a patent ordered to issue.

A Talking Machine.

The old talking machine of Faber is again on exhibition at Philadelphia, and is thus described in the *Post* of that city:

Previous to an experimental illustration of the wonderful powers of the machine, Dr. J. Solis Cohn delivered an exhaustive lecture upon the anatomy of the vocal organs and the formation of sound, the structure of the machine, and concluded with an historical sketch of the invention.

It was originated about thirty years ago by the uncle of Professor Faber, and exhibited at the time in that city. The present Professor Faber improved it wonderfully, although it took a great while to arrive at the present perfection. Seven years were necessary to arrive at the production of the sound of the letter "e." The exhibition last night consisted of the pronunciation of all the letters of the alphabet and elementary sounds of our language. Phrases of six and eight words in length were spoken in the English, French, and German languages. The voice is a shrill, monotonous, and unnatural one, but in the majority of instances startlingly correct. It was operated by a German lady, who does not understand a word of English, and produces the sounds simply through phonetic translation.

The happy pronunciation of a word or phrase was received by the audience with applause. If there is, in our estimation, any sound that is slurred in the slightest, it is the sound of the letter "i." It must be remembered that the basis of speech of this machine is the sound system of the German language, and that all the English words are spoken with a German accent. The machine is constructed as follows:

The machine consists of a gilded table, highly ornamented beneath which appears a bellows and a lever to put it in motion. Upon the top a lifeless face, with clammy eyes, stares on you, and behind it is arranged a mass of wires, strings, delicate wooden levers, rubber tubes, and pipes, which make up the speaking apparatus. By a compression of the bellows, the air is forced through a narrow aperture into an iron windpipe, and thence into an artificial glottis, from which it passes through a vent representing the human mouth, with movable jaws and rubber tongue. There are fourteen levers, which gives each a distinct utterance, and when moved in concert they produce the sound of any desired syllable. A separate lever causes a peal of laughter, which would be natural enough except for a slightly grating noise.

Are the Andes Sinking?

It is a singular fact that almost every successive measurement of the Equatorial Andes gives a reduced altitude. Thus:

Quito, according to	La Condamine (1745)	is 9,596 feet.
"	Humboldt (1803)	" 9,570 "
"	Boussingault (1831)	" 9,567 "
"	Bureau des longs. (?)	" 9,540 "
"	Prof. Orton (1867)	" 9,520 "
"	Reiss and Stübel (1870)	" 9,350 "
Pichincha	La Condamine (1745)	" 15,606 "
"	Humboldt (1803)	" 15,922 "
"	Prof. Orton (1867)	" 15,827 "
"	Reiss and Stübel (1871)	" 15,704 "
" crater	Moreno & Wisse (1844)	" 13,600 "
"	Prof. Orton (1867)	" 13,300 "
"	Reiss and Stübel (1870)	" 13,175 "
Antisana hacienda	Humboldt (1803)	" 13,465 "
"	Boussingault (1831)	" 13,356 "
"	Prof. Orton (1867)	" 13,300 "

This shows an apparent subsidence of Quito of 246 feet in 125 years, and of Pichincha, 218 feet. Its crater has apparently subsided 425 feet in the past twenty-six years. Antisana has subsided 165 feet in sixty-four years.

The Recent Discovery in the Arctic Regions.

A fortnight since, we informed our readers that the long cherished idea of the existence of an open sea surrounding the North Pole had been verified by the German explorers. The travelers Payer and Weyprecht have reached this region, in accordance with the suggestion of Captain Bent, by pursuing the course of the Gulf Stream, the warm current of which, he supposed, would lead to the gate of the frozen regions.

The scientific world will look eagerly for detailed accounts of this prodigious event in the history of the physical study of our globe. In the meantime, Captain Hall, in the *Polaris*, is pursuing the investigation through another channel, and, by our last accounts, was progressing rapidly towards his object.

Answers to Correspondents.

SPECIAL NOTE.—This column is designed for the general interest and instruction of our readers, not for gratuitous replies to questions of a purely business or personal nature. We will publish such inquiries, however when void for as advertisements at 100 a line, under the head of "Business and Personal."

ALL reference to back numbers must be by volume and page.

J. H. P., of N. Y.—There have been stories about the late shifting of the Gulf Stream, but no such stories have been authenticated.

E. V. N., of Ohio.—General George B. McClellan, 348 Broadway, New York, is the Chairman of the New York State Commission on Erie Canal Navigation.

HEATING SURFACE OF BOILERS.—A. H. G. can apply the rules for measuring cylindrical surfaces (which the *SCIENTIFIC AMERICAN* has recently given with such generous profusion) to his own particular case. A slight knowledge of arithmetic only is required.—D. B., of N. Y.

FISH IN LIMESTONE WATER.—Trout thrive well in limestone water, and if A. B. wishes to stock his pond and keep the fish in good condition, he is fortunate in having a never failing stream such as he describes. The brook trout will not do well unless the water be constantly running.—D. B., of N. Y.

SHAMPOOING THE HAIR.—H. L. J. will find, if he will break an egg into his hair, and shampoo his head with it, just before going into the bath tub, that it will cleanse his scalp better than any shampoo mixture that is sold. I have used eggs for washing the hair for fifteen years. F. S. C., of Mass.

FIREPROOF PAPER.—In answer to C. G. A., query No. 2, Nov. 4, newspapers can be rendered fireproof by dipping in diluted 25° B. soluble glass, by first neutralizing the alkali by diluted muriatic acid of 10° B, while hot, and drying by the atmosphere. Fire cannot then destroy the texture of the paper. C. G. A. may be sure of success with a little care.—J. W. F., of N. Y.

FIREPROOF CLOTH.—In answer to C. G. A., query No. 3, Nov. 4, tents, awnings, canvas, etc., can be made fireproof as well as waterproof by the careful application of soluble glass. First dilute it with boiling water to 25° B. by hydrometer, before thoroughly dry, immerse in a solution of sulphate of alumina (alum cake) and sulphate of copper (blue vitriol) consisting of one part of each to ten parts of water. The fabric cannot be impaired by slowly drying by atmosphere.—J. W. F., of N. Y.

SOLUBLE GLASS.—In answer to W. J., query No. 6, No. 4: The article you purchased in San Francisco was the silicate of soda or liquid quartz, only used by soap boilers for cheapening and hardening their grease. The right article is soluble glass (water glass or liquid silic), of a syrupy consistency (40° B.), of clear, transparent straw color, used expressly for cements, stone, etc.—J. W. F., of N. Y.

CLEANING BRASS.—I saw in the last number of the *SCIENTIFIC AMERICAN* several methods for cleaning brass. I have seen no smoother, brighter brasses than those on our locomotives, and they are cleaned thus: Rub first with a piece of dirty cotton waste, and polish with clean waste and soot from the furnace door. We use bituminous coal. For the dirty waste, use that first used to wipe the dust and oil from the engine. If G. N. K. will try this, he can have bright smooth brasses at small cost. All emery and such substances scratch the brasses and destroy the hard, smooth surface which is the very thing required to be maintained.—W. G., of W. Va.

DRYING ROOM FOR CLOTHES.—J. J., page 282, No. 18, current volume, can easily and cheaply improve his drying room as follows: If there is an unused chimney flue in the room, cut an opening into it, of the full size of the flue, about one foot high from the floor. If there is no chimney, make a draft flue of wood, tin, or stovepipe, the larger the better, and the higher the better, but let the opening be low down in the room. At or near the level of the floor, introduce the fresh air, by any convenient opening sufficiently large to supply the draft pipe fully. This is preferably placed near the heating pipe. The lower down the heater is placed, and the cold air is admitted, the better. The fresh air, being warmed, has an increased capacity for moisture; it rises to the ceiling, is diffused there, and forces down the cooler particles of air in the room, cooling itself and being forced down in turn, and escaping, laden with moisture, through the draft pipe, as may be easily seen by holding the flame of a candle at the opening. It is a common error to make the opening of the escape flue, near the ceiling, whenever ventilation is intended to get rid of either carbonic acid gas or moisture; but in this case the hot air travels in a direct current, escaping before half its work is done, and out of the direct current, scarcely doing any work at all.—J. H., of O.

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.

INCrustation 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 slaughter house, 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 gages, 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.

Mothers and Nurses.—Burnett's Kalliston is admirable for the sensitive skin of infants.

Business and Personal.

The Charge for Insertion under this head is One Dollar a Line. If the Notices exceed Four Lines, One Dollar and a Half per Line will be charged.

Business in Boston wanted by an energetic young man with capital and first class references. Address F. Carlton, P. O. Box 1268, Boston.

The paper that meets the eye of manufacturers throughout the United States—Boston Bulletin, \$1 00 a year. Advertisements 17c. a line.

Inventors of Saw Filing Machines, please send circulars to Post Office Box No. 78, Salem, New Jersey.

Wanted, in good order, the following second hand machinery: One Drill Press, with at least two drill spindles—one Hand Milling Machine—one Power Lathe, for light turning. Address E. R. B., Box 119, Newburgh, N. Y., with full description and price.

The best and cheapest Self Oilers are manufactured by Holland & Cody, 8 Gold Street, New York. Send for price list.

Hafner's Patent Eureka Coil Spring for Mill Spindles, is the only Spring constructed on scientific and the rotary principle. Mill-furnishers, millwrights, and millers, send for circulars and satisfy yourselves. Sample spring sent on trial to reliable parties. John A. Hafner, Santa Fe, Ill.

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.

Tested Machinery Oils—Kelley's Patent Sperm Oil, \$1 gallon; Engine Oil, 75 cts.; Filtered Rock Lubricating Oil, 75 cts. Send for certificates. 116 Maiden Lane, N. Y.

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.

To Ascertain where there will be a demand for new Machinery, mechanics, or manufacturers' supplies, see Manufacturing News of United States in Boston Commercial Bulletin. Terms \$4.00 a year

For Best Galvanized Iron Cornice Machines in the United States, for both straight and circular work, address Calvin Carr & Co., 26 Merwin St., Cleveland, Ohio.

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

One "Scott's Wheel Moulding Machine," saves \$5,000 yearly in patterns—wheels absolutely perfect. Engraving sent free. Hamilton E. Towle, 176 Broadway, New York.

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. Gaunt, 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.

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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 Winterpressed Sperm. Sold in bottles, cans, and barrels, by Wm. F. Nye, New Bedford, Mass.

Vinegar—how made—of Cider, Wine, or Sorgo, in 10 hours F. Sage, Cromwell, Conn.

Best Oak Tanned Leather and Vulcanized Rubber Belting. Greene, Tweed & Co., 18 Park Place, New York.

To Cotton Presses, Storage Men, and Freighters.—35-horse Engine and Boiler, with two Hydraulic Cotton Presses, each capable of pressing 35 bales an hour. Machinery first class. Price extremely low. Wm. D. Andrews & Bro., 414 Water st. New York.

Brown's Coal Yard Quarry & Contractors' Apparatus for hoisting and conveying material by iron cable. W. D. Andrews & Bro., 414 Water st., N. Y. Presses, Dies, and Tinner's Tools. Conor & Mays, late Mays & Bliss, 4 to 8 Water st., opposite Fulton Ferry, Brooklyn, N. Y.

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 INCrustation 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 concave 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.—**WHITewASH 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.