

PSYCHIC FORCE.—SPIRIT FACES.

One of the marvels of spirit jugglery, or "psychic force" as the learned Dr. Crookes denominates it, is the production of images of human forms, hands, arms, faces, etc., which are seen by the observers to float around in the air. In some cases, the faces have been recognized as those of departed friends by sitters in spiritual circles. Quite a thriving business is done in this city by professors of the art; but some queer revelations have lately been made. One Gordon carried on a spirit establishment and was doing a profitable business, at 50 cents a head, until his partner, the business manager, in a quarrel peached on him, and revealed to the public how the thing was done. Professor Gordon, it appears, dressed in the paraphernalia of a high priest, appears before his audience, turns down the lights, and then by means of strings and hands manipulates a series of large lithographic colored pictures of faces, causing the pictures to rise from behind an altar, float and sway in the air. These pictures represent females, children and men, and in the dim twilight are from time to time pronounced, by this or that person in the audience, to be the spirit faces of their departed friends. Only a small stock of pictures is required to produce these supernatural effects.

A higher priced professor of this mystic art is one Slade, who until recently has confined his spirits to the more commonplace dodges of spirit-writing on slates, rapping, table lifting, accordion playing, knife throwing, etc. His circles are more select, generally only two admitted at a time to the performance; tickets \$3 each. Lately he has added on the the spirit face business and raised the price to \$5. An intelligent friend of ours, who visited the show, pronounces the faces to be those of genuine spirits, and regards the whole performance as most astonishing. He came away completely converted to the doctrine of the bodily presence and power of the spirits. *Per contra*, the New York Sun recently published an *exposé* of Slade's manipulations, as derived from a member of his own household. The faces are produced behind a black curtain, and make their appearance before a small opening in the same. Slade employs a stock of masks and pictures, which he works by means of threads, making them rise and appear before the opening, the gas being turned down so as to give a dim, sepulchral effect. How it is, that any intelligent person can be brought to attribute these tricks to spiritual agency, passes comprehension.

The following letter, evidently from a believer, gives perhaps as good an explanation of the matter as any that has been made public:

THE SPIRIT FACES.—THEIR APPEARANCES EXPLAINED.

To the Editor of the Scientific American:

One who has tested many phases of spirit communion, and who has been through varied experiences herself, feels that she can give an explanation of the so-called spirit faces, produced by means of paper pictures by Gordon, Slade, and other mediums. Through the science of mesmerism, the spirits of our departed friends can, as I believe, act upon the optic nerves of those in the body. The psychic force, emanating from the medium, forms an atmosphere which acts upon the brain of the sitter, and a real portrait may be thus transfigured in the mind of the sitter and made to resemble the form of the departed one.

In my own experience, I have been attracted to look at ordinary pictures hanging upon the wall, and my eyes have been somehow affected by the mesmeric influence, until the pictures have been transformed so as to appear to me like the forms of departed friends. This I call the science of magnetic painting.

I believe that Mesmer is now acting upon the earth.

The mysteries of science are yet unfathomed.

Electricity, mesmerism and magnetism are combined in this new science, and will carry humanity onward and upward in its search after truth.

H. E. B.

March, 1872.

AMERICAN DISTRICT TELEGRAPH COMPANY.—A NEW ENTERPRISE.

A novel enterprise has been inaugurated in this city, which we are confident will not only be a great public convenience but prove remunerative to the company organized to conduct it.

It is proposed by this company to place, in private dwellings, stores and offices, a telegraphic signalling instrument, by which communication may be established with one or other of a number of district offices located in New York and adjacent cities, and which will summon a messenger or policeman, as may be required, the district offices being so located that the call may be responded to in three minutes' time. Thus a person, awaking and becoming conscious of the presence of thieves in the building, may quietly touch a key at the head of his bed and summon assistance. Or, in case of sickness, he may have a messenger at the door in an equally short space of time, no matter at what hour of the day or night; or, if messengers are required for business purposes, they may be summoned in like manner, this being in our opinion the most useful feature of this plan, which, if well carried out, will prove a great convenience to the business public.

The apparatus, placed in dwellings, offices, etc., requires no attention, the battery and other fixtures, besides the signalling apparatus, being under the sole care of the company's employees at the district offices. The service is rendered for a small sum, payable monthly by each subscriber. The general offices of this company are at 62 Broadway, New York, and 185 Montague street, Brooklyn. Sub-offices are to be established throughout New York and Brooklyn.

A New Gun Cotton.

Some experiments for showing an improved quality of gun cotton, as made by Mr. Punshon, took place within the last few days at Wormwood Scrubbs. Mr. Punshon claims to be able to produce a gun cotton of any required explosive quality, so as to suit any purpose for which it may be wanted, and at the same time insure perfect uniformity of manufacture. He also states that by his treatment the difficulty of stowage is got rid of, and that his gun cotton may be stored dry without any liability to decomposition and consequent spontaneous explosion. He accomplishes his objects by covering the particles of gun cotton with sugar, with chlorate of potash or other salts, so as to separate the particles of cotton, and by varying the proportions and quantities of these materials to suit the special explosive quality required. These experiments, however, were simply to test the quality, of the cotton as prepared for rifle shooting, compared with gunpowder. The cartridges contained fifty grains of cotton, and were tried against gunpowder cartridges containing fifty, seventy, and eighty-four grains. The first trial was against a target composed of fourteen pine boards, of one inch thick, clamped together, and at twenty-five yards' distance. In this case, the bullets in each instance passed through all the boards, and splashed against the iron target behind; but at longer distances, up to two hundred yards, the gun cotton still penetrated, while the gunpowder cartridges containing seventy, and ultimately eighty-four grains, had to be used to effect the same amount of penetration. At five hundred yards, the shooting from the shoulder with the gun cotton cartridges was regular and good.

Fidgety Nurses.

It is almost better for a sick person to be without a nurse at all than to have in the room a fidgety one, who gives the poor invalid the feeling of living in the midst of the whirlwind. That it proceeds from the nervousness and anxiety of affection is no comfort, and indeed is often only an aggravation, for the fresh worry that the poor nurse is sure to throw herself into is a check upon the expression of uneasiness or additional illness which is often a relief. Real affection, united with common sense, will produce the steady, calm demeanor which is such a rest and comfort to those who have to struggle with the nervousness and irritability incidental to severe illness. Want of presence of mind says the *California Farmer*, in a sick room is productive of more evils than distress to the invalid. The fussy easily agitated nurse will be quite overwhelmed by the sight of a fainting fit, or the bursting afresh of a vein after bleeding; she will forget the simplest remedies, or be too nervous and too faint to apply them properly; she is always in danger of mistaking medicines, and sometimes give a lotion internally, and carefully rubs on a tonic or a soothing draught. It is no exaggeration to say that far more suffering, and even loss of life, has been caused by want of composure and presence of mind in a sick room, than by negligence.

A CHURCH ON WHEELS.—A London vicar proposes an itinerating church, to reach the neglected masses. A large furniture van, with a belfry and seats and other fittings, holding thirty or forty persons, is to pass from street to street, gathering a congregation and holding worship in one place, outrunners preceding it to invite attendance, and then pass on to repeat the same in another locality; and so from hour to hour, filled and emptied, teaching a great number who will not come even to chapels or to Bible rooms.

It is a very curious fact that many people—capitalists especially—have an impression that invention and mechanical design are somehow outside of the range of the reasoning faculties, that they are a sort of inspiration or *afflatus* which comes over a man in an inexplicable way, and that probably the less common sense or wisdom a person may have, regarding other matters, the better must he be as an inventor. Many who have entertained such impressions have had bitter reason to mourn that they based their faith on so insecure a foundation. The successful application of an invention requires, in fact, an exercise of the reasoning faculties quite as much as, or perhaps more than, a lawyer's argument in court; and the conclusion of the inventor should be as carefully sustained by evidence as is the lawyer's case.—*Railway Gazette*.

OBJECTIONS are urged by some that science has not improved the condition of the multitude, and that its benefits are limited to the body only. But surely this is not so. The more the intellect is developed, the more is man indisposed to make sensuality his aim. Whatever lightens human toil, sets free a portion of the intellect to bask in the light of its native element, and relieve some weak part of humanity from the stress of temptation. It is impossible to obtain a high standing in science without moral training.

RED RIVER RAFT.—The immense raft which has so long obstructed the Red River appears to move up stream instead of down, the motion being at the rate of about two miles in a year. The explanation of this retrograde movement is that the logs of the lower end of the raft are continually broken away and carried off by the flood and freshets, while the other end is constantly receiving additions. Thus the raft, always falling away at one end and growing at the other, gradually moves up the river, and it is calculated that it has moved since its forming about four hundred miles. In 1833, when the raft was 124 miles long, the work of removing it was commenced by the Government, but after working at it for twenty-two years, the attempt was abandoned as impracticable, and was confined to opening some of the lateral channels so as to facilitate navigation.

Notes & 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.—DYEING FURS.—How can I dye furs a permanent black?—K.
- 2.—MARBLEIZING SLATE.—Will some one tell me what materials are used for this process, and how they are prepared and applied?—P. P. G. G.
- 3.—COINS.—Can any one tell me how to detect the dates on old and worn coins?—L. B.
- 4.—TANNING RABBIT SKINS, ETC.—Can any one tell me a cheap and simple way of tanning the skins of rabbits, musk rats, etc?—L. H. S.
- 5.—PRESERVING NATURAL FLOWERS.—How can pressed and dried flowers be made to preserve their colors?—H. P.
- 6.—LICORICE.—I wish to have information on the cultivation of licorice, and as to how the seed may be procured.—P. F. D.
- 7.—HARDENING MILLSTONE PICKS.—Can any one inform me of a process for hardening steel picks for French burr stones, or state where I could get such information?—L. P.
- 8.—HEAVY GUN.—What is the weight of the heaviest gun ever cast in the United States? What is its caliber; and what is the weight of its solid shot?—J. E. H.
- 9.—SAW DUST FOR DEAFENING WALLS.—Will some of your correspondents please inform me how to render saw dust non-combustible, to fit it for use in deafening dwellings, etc., also to make it proof against mice and other vermin?—L. M.
- 10.—DESTRUCTION OF GALVANIZED IRON.—Please inform me if there is a magnetic or electrical influence operating continually in galvanized iron, tending to destroy it?—D.
- 11.—HYDROGEN.—How can I obtain nascent hydrogen, or where can I see full descriptions of the different ways of producing it?—J. G.
- 12.—EXTRACTING INK MARKS.—How can I remove ink marks from green paper without destroying the original color?—J. J. M.
- 13.—WATER FOR AQUARIA.—Can any of your readers tell me how to keep the water in my aquarium pure and clear without changing it? It can be done.—C. D.
- 14.—TRUEING GRINDSTONES.—Is there any reliable method of hacking or keeping grindstones true without stopping them?—A. J. P. S.
- 15.—PREVENTION OF FREEZING.—What can I put into cider or vinegar to prevent its freezing? I want something not injurious in use, and other than alcohol.—J. E. D.
- 16.—TRANSFER VARNISH.—What is the proper composition to use for transferring illustrations from paper to copper and steel? It is only required to transfer an outline or general impression.—D. B. K.
- 17.—TRANSFERRING TO GLASS, ETC.—Can prints from steel or wood engravings be transferred from paper to glass, wood, or other material? And how is it done?—K. W.
- 18.—ELECTRO-CHEMICAL TELEGRAPH PAPER.—How can the marks on electro-chemical telegraph paper, moistened with a solution of iodide of potassium, be rendered permanent? Can any chemical be added to the solution to effect this?—G. B. M.
- 19.—TEST FOR NITRIC ACID.—What is the simplest and best test for nitric acid in any solution? Is litmus paper reliable when the quantity of acid present is very minute?—P. C. H.
- 20.—ANTS AND MOLES.—Can any of the readers of the SCIENTIFIC AMERICAN inform me how to destroy ants about the house, and moles in the garden? Thousands would like a practical answer to both enquiries.—T. M. G.
- 21.—BLOWING OUT BOILER.—At what pressure would it be safe to blow out a 24 horse boiler, carrying 60 pounds steam?—D. & N.
- 22.—WATER FEED TO BOILERS.—Would it not be advantageous to pump into a boiler just so much water as is evaporated in the production of the steam we are using? If we should pass air into our boiler with the water, what would be the result? Would it be beneficial or injurious?—D. & N.
- 23.—BLACK WALNUT DOORS.—When these have had the grain filled and received a coat of shellac and another of oil, on exposure to the sun they become light colored. Is there anything that can be put on to make them darker, or at least to prevent them from becoming lighter? I oil them every few months, but the shellac seems to keep the oil from striking in.—F. C.
- 24.—TEST FOR LEAD IN WATER.—Is there any way in which I can test rain water for lead? It goes through a lead pipe that has not been disturbed for more than 40 years. Suppose I boil down a couple of gallons to a gill or less, can I not apply some test to it?—F. C.
- 25.—CLEANSING HAIR BRUSH.—How can a hair brush be cleaned without injuring the stiffness of the bristles?—F. C.
- 26.—TEMPERING SPRINGS.—Will some reader of the SCIENTIFIC AMERICAN inform me how to secure in a carriage spring, after it has been mended, the desired temper? I would also like to know an approved plan for obtaining the right temper in the main spring of a gunlock.—J. H. S.
- 27.—FRUIT JELLIES.—Will any of your readers inform me how fruit jellies are made? They are extensively sold in the grocery trade. I should like to know of what fruit they consist, as they evidently are not made of the varieties after which they are named. Perhaps the currant is an exception to this.—M.
- 28.—CEMENTING GROUND EMERY TO WOOD.—Will some of your many readers inform me how to apply ground emery to wood for the purpose of grinding wood under water? How long will it last? Would it be durable or not, if run at about 200 revolutions per minute, under a pressure of 300 pounds of wood.—J. J. T.
- 29.—MOUNTING CHROMOS.—I wish to know the mode of mounting chromos. How are the chromos put on the canvass and stretched on the frames so that, when they are dry, they will be as tight as a drum head? I have tried putting them on wet, and when they are dry, they are loose. Will some of your readers give me the whole process?—J. W. B.
- 30.—CLEANSING BOILER.—Immediately after blowing out a boiler at a pressure of from 50 to 60 pounds, would it be prudent to rinse out with water passed through a heater, say heated to 40 degrees or luke warm? If not right, what would be the consequence?—D. & N.
- 31.—PACKING RINGS.—Would you consider it right to place ordinary brass packing rings (such as used in locomotives) in the cylinder of a stationary, so as to allow them to turn, and not make them fast to the inside ring or fast to each other by feather, steady pin, or otherwise? This would allow them to work around, independently of each other and the said inside ring. If so, what would prevent the openings in the brass rings working around opposite each other, thereby allowing the steam to blow through?—D. & N.

Examples for the Ladies.

Mrs. Elizabeth A. Monaghan, of Brooklyn, N. Y., has used her Wheeler & Wilson Machine since 1861. During the war she stitched forty blouses a day of eight hours, averaging about \$16 a week: since then she has stitched from thirty to thirty-six linen coats a day. Last year, in three months, she stitched 1274 linen coats, earning \$186.46, besides doing her own housework and tending her baby. She would use no other Machine.

Mrs. C., of New York, has used a Wheeler & Wilson Machine since 1857, never averaging less than \$700 a year, and for the last five years \$1,000. She used the same needle during 1870, and earned with it over \$1,000.

The Sweet, Fixed Oil of the Cocoon is represented in *Burnett's Cocaine*.

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.

Boiler and Pipe Covering manufactured by the Chalmers Spence Non-Conductor Co. In use in the principal mills and factories. Claims—Economy, Safety, and Durability. Offices and Manufacturing, foot E. 9th street, New York, and 1208 N. 2d street, St. Louis, Mo.

Pattern Molding Letters (metallic), to letter or number castings. All sizes. H. W. Knight, Seneca Falls, N. Y.

Wanted—To invest \$5,000, or less, in business—manufacturing preferred. Would join a practical man in starting. Business experience and capacity—references. D. Nelwin, Boston, Mass.

J. H. Preston, Jefferson City, Mo., wants to know where whangs or thongs are made.

To Sash, Door, and Blind Manufacturers in the Southern States: A man, who thoroughly understands the above business, wants a position as superintendent, or as foreman. Good reference can be given. Address N. White, Meadville, Pa.

The Tools that sell—Patent Star Bevels and Star Try Squares. Acknowledged by all to be the best Tools in the market. G. W. Hallett & Co., West Meriden, Conn.

Valve Refitting Machinery, sold by C. F. Hall & Son, sole manufacturers of the only original Patent Machines. Office, 21 Murray Street, New York.

Contractors for the removal of buildings, entire, are requested to communicate with T. H. McHenry, Pikesville, Md.

Cutlers' Grindstones, machine made—J. E. Mitchell, Phila., Pa.

Wickersly Grindstones, very cheap—J. E. Mitchell, Phila., Pa.

For Cheap Process to anneal small hard Castings in ten minutes, send 50 cents to J. C. Spencer, Phelps, N. Y. Will file easily.

Cast Steel Reaper and Mower Guards are made by the Pittsburgh Steel Casting Co., strong as bar steel, and cheaper than wrought iron guards. See advertisement.

Sixty per cent allowed canvassers for Carpentry Made Easy, a valuable work for scientific men and mechanics. Howard Challen, Publisher, 521 Minor Street, Philadelphia, Pa.

Manufacturers and Mill Supplies of all kinds. Greene, Tweed & Co., 18 Park Place, New York.

The "Railroad Gazette" of March 2 contains a full page engraving of a Car Wheel Borer. Also much information of value to Engineers and Mechanics. Single copies, 10c. Address, 72 Broadway, New York.

The "Safety" Hold Back for Carriages prevents runaway accidents. See Sci. Am. Feb. 24, 1872. Undivided Interest, or State and County Rights, for sale. Address N. W. Simons, Williamsfield, Ohio.

Lord's improved Screen or Separator—also Watchman's Time Detector. For particulars, address Geo. W. Lord, 233 Arch St., Phila., Pa.

Scale in Steam Boilers. We will remove and prevent Scale in any Steam Boiler, or make no charge. Geo. W. Lord, 233 Arch Street, Philadelphia, Pa.

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

An Engineer, experienced in designing and constructing Engines, Boilers, and general Machinery, desires a permanent position as superintendent or head draftsman. Is practical machinist, and familiar with Indicator. Refers to leading concerns. Address, M. R., P. O. Box 5,652, New York.

Send samples of your Boiler Scale to Richard H. Buel, Consulting Mechanical Engineer, 7 Warren St., New York, who will find a method of removal or prevention, at moderate charges.

Gage Lathes and Wood Lathes. Wm. Scott, Binghamton, N. Y. Null Lathes and Law Arbors. Wm. Scott, Binghamton, N. Y.

The Exeter Machine Works, Exeter, N. H., manufacturers of Sectional Boilers and Steam Engines, will soon open, in Boston, Mass., a centrally located sales room, in connection with their works; and are willing to take the agency of a few first class Machines and Tools not already introduced in that city.

For Diamond Turning Tools, for Emery Wheels and Grindstones, address Sullivan Machine Co., Claremont, N. Hamp.

Grindstones for manufacturing purposes a specialty—made by Worthington & Sons, North Amherst, Ohio. Send for price list.

Standard Twist Drills, every size, in lots from one drill to 10,000, at 1/2 manufacturer's price. Sample and circular mailed for 25c. Hamilton E. Towle, 176 Broadway, New York.

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.

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. 64 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.

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

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 Tinners' 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.

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.

Hydraulic Jacks and Presses, New or Second Hand, Bought and sold. Send for circular to E. Lyon, 470 Grand Street, New York.

For Hand Fire Engines, address Rumsey & Co., Seneca Falls, N. Y.

Over 800 different style Pumps for Tanners, Paper Makers, Fire Purposes, etc. Send for Catalogue. Rumsey & Co., Seneca Falls, N. Y.

Grist Mills, New Patents. Edward Harrison, New Haven, Conn. Taft's Portable Hot Air Vapor and Shower Bathing Apparatus. Address Portable Bath Co., Sag Harbor, N. Y. Send for Circular.

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

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

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

Belting as is Belting—Best Philadelphia Oak Tanned. C. W. Arny, 801 and 803 Cherry Street, Philadelphia, Pa.

Patent Interlocking Grate Bars—Used and approved in 5000 furnaces, in the principal manufacturing in the United States. Superior to all others in durability, and economy of fuel. No economist can afford to do without them. Address Salamander Grate Bar Co., 32 Broadway, N. Y.

Asbestos and Silicate of Soda in large and small quantities. E. D. & W. A. French, 3rd & Vine Sts., Camden, N. J.

In the Wakefield Earth Closet are combined Health, Cleanliness and Comfort. Send to 28 Dey St., New York, for descriptive pamphlet.

Enameled and Tinned Hollow-Ware and job work of all kinds. Warranted to give satisfaction, by A. G. Patton, Troy, N. Y.

For Circular of the largest variety of Wood Planing and Mitre Dovetailing Machinery, send to A. Davis, Lowell, Mass.

Rubber Valves—Finest quality, cut at once for delivery; or moulded to order. Address, Gutta Percha & Rubber Mfg Co., 9 & 11 Park Place, New York.

Williamson's Road Steamer and Steam Plow, with Thomson's Tires. Address D. D. Williamson, 82 Broadway, N. Y., or Box 1808.

Boynton's Lightning Saws. The genuine \$500 challenge. Will cut five times as fast as an ax. A 6 foot cross cut and buck saw, \$6. E. M. Boynton, 80 Beekman Street, New York, Sole Proprietor.

Blake's Belt Studs. The best fastening for Leather or Rubber Belts. 40,000 Manufacturers use them. Greene, Tweed & Co., 18 Park Place, New York.

Hoisting Engines. Simplest, cheapest, and best. Send to John A. Lighthall, Beekman & Co., Office 5 Bowling Green, New York.

L. & J. W. Feuchtwanger, 55 Cedar St., New York, Manufacturers of Silicates, Soda and Potash, Soluble Glass, Importers of Chemicals and Drugs for Manufacturers' use.

New & Improved Bolt Forging Machines, J. R. Abbe, Prov., R. I.

The N. Y. Manuf'g Co., 21 Courtland St., N. Y., buy, sell, and manufacture Patented articles. Illustrated Catalogue, 48 pages, free.

Patent Rotary Engine; for all purposes, two to one hundred horse power; equal to any, for less price. Send for particulars and price list to John A. Lighthall, Beekman & Co., corner Inlay and Verona Streets, Brooklyn, N. Y.

The paper that meets the eye of manufacturers throughout the United States—Boston Bulletin, \$4 00 a year. Advertisements 17c. a line.

Best and Cheapest—The Jones Scale Works, Binghamton, N. Y.

New Pat. Quick and easy way of Graining. First class imitations of Oak, Walnut, Rosewood, &c. Send stamp for circular. J. J. Callow, Cleveland, Ohio.

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 paid 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.

T. N. L., of Va.—The mineral you send is ferruginous quartz—quartz containing iron.

BLACKING.—B. B. can find the information he seeks on page 170 of Vol. XXIV. of the SCIENTIFIC AMERICAN.

F. F. H., of N. Y., has omitted something in his letter, so that it is unintelligible.

S. L. A. M., of Ga.—We know of nothing that will remove the outer portion of the moss without destroying the texture of the rest.

CEMENT FOR CAST IRON.—Answer to query 6, February 17, 1872. If C. C. will take six parts of pulverized clay and one part of iron filings, make into a paste with boiling linseed oil, and apply hot, he will thus render his cracked vessels watertight.—J. J. M., of Pa.

CEMENT FOR CAST IRON.—C. C., query 6, February 17, can make this by mixing equal parts of salt and sifted ashes, and moistening them with water. Drive the cement into the crack with a mallet, and dry slowly over a fire.—M. L. B., of N. Y.

O. S., No. 14, February 24, 1872, will find a remedy for leaky roofs, whether of felt or other material, in the application of internal heat to the eaves, trough, and conductor, as may be seen upon my roof, No. 44 Whitesboro street, Utica, N. Y. Call and see how it works.—R. B. M.

W. E., of N. Y., is troubled with weak knees and exudation of the sinovial fluid, so that for their support he requires elastic bands.

L. P., of Mass., sends us a fragment of charred hair or wool, which has been used as steam packing, with the inquiry whether there is danger of fire from steam heating apparatus, in contact with combustibles. We reply that with high steam we think there is. With low steam we think there is not, unless substances liable to spontaneous combustion are laid against the pipes or heating racks.

L. H. P., of Chicago.—We do not think the accident of fire, occurring under circumstances as you describe them, was caused by the steam pipes. Our opinions upon this subject generally have already been fully expressed in recent issues, and we do not wish to reopen the discussion at present.

CEMENT FOR CAST IRON.—In answer to query 6, February 17, take one part fire clay and one part iron filings, mixed to the right consistency with muriatic acid diluted with a little water. The longer it stands before being used the better.—M. H. K., of N. J.

ENGINE POWER FOR CIRCULAR SAWS.—To NEMO, query 16, January 20: A ten horse engine driving a circular saw, cutting with the grain of the wood, will be equal to a fifteen horse engine cutting against the grain. If he will try it, the result will both satisfy and surprise him.—E. B. T., of Va.

CEMENT FOR CAST IRON.—To C. C., query 6, February 17.

If the crack be in the bottom of the pot, drill a hole at each extreme end of the crack, to stop further cracking, plug rivet the holes with copper, and, with fine iron filings saturated with urine, caulk the crack. I have tried this method on oil pots on board whaleships, with success.—C. F. of Mass.

SAND IN DRIVE WELL.—In answer to query 24, February 17, let W. L. take a three quarter inch pipe and run it down inside his pipe to the sand; put on a force pump, and force water down. The sand will come out at the top of his pipe. Pump till the water is clear.—L. C. M., of Mass.

BORING CONICAL CYLINDER.—On page 122, of Vol. XXVI., No. 8, February 17, I. F. W. asks how he can bore out a cylinder forty inches long and twelve inches in diameter, diminishing one eighth of an inch in that length, with a boring bar ten feet long. If he will throw his bar three sixteenths of an inch out of center next to the face plate, he can accomplish what he desires, provided his boring bar has a feed screw on it, and he bores from the small end of the cylinder.—G. C.

G. D. B., of Pa., says: Enclosed you will find a specimen of something which I dipped out of a creek. It comes out in considerable quantities, and covers the whole bottom of the creek for fifteen or twenty rods from the place where it first shows, which is under a mill dam. A man that worked in the mill over twenty years ago says they used to get it on their clothes, and it could not be washed out. We have lately put in steam, and it gets into the boiler and bothers us some. Would you please tell me what it is?—G. D. B.—Answer: It is hydrous oxide of iron mixed with earthy matter. Is used somewhat for polishing purposes.

TEMPERING SPRINGS.—Judging from the character of answers to queries in your columns, as to the best method of tempering springs, and from other observations, I conclude that a great many mechanics think it necessary to repeat the process of drawing two or three times in order to get just the right temper. This is an erroneous idea. Once drawing to the proper color, after hardening in water, is sufficient, and any repetition is a waste of time and fuel; as, if the degree of heat applied does not exceed that required to obtain the right color in the first instance, the temper of the spring will remain the same after any number of subsequent heatings.—G. L. B., of Me.

F. C. S., of R. I.—Sulphur, like other remedies, should only be used as the choice of a lesser evil over a greater one. As an application for dandruff, which is the result of a diseased state of the skin, we have no doubt of its occasional efficacy. Like other remedies, it sometimes effects a cure, and when used in the proper manner, no injurious effects upon the hair need be feared. When sulphur is combined with metals, as lead for instance (with which it is often used as a hair restorer) the metal may by absorption produce ill effects upon the general health.

COMPOUND GEARS FOR SCREW CUTTING.—Permit me to say a few words in defence of the rule given by C. F., of N. J. I have made my mind thoroughly familiar with its use, having composed indexes for different lathes, some of them containing over one hundred common and useful threads; and therefore I feel that on this subject I can speak with authority. This rule supplies a want long felt in machine shops, a rule which would at once and to a certainty tell whether a lathe would cut a certain thread. Let any one thoroughly master that rule, and he will be convinced of its merits. J. P. M. C., in condemning it, showed that he neither understood it nor gave it a practical trial. His objection of its taking so much time to work by is not a good one. I want only from one to three minutes, according to the fraction of thread. Now a word about the rule, which I have used for years, and which is the common rule all over the country, but which, though it is good so far as it goes, is often of no value whatever in the cutting of fractional threads, owing to the number of threads which can be cut by its use being extremely limited; while by the rule of C. F. there is almost no end to the number. Let J. P. M. C. work a few years in shops where jobbing of all kinds is done, where fractional threads are a common thing, and my word for it, he will find, as I have done, that the rule he gives is as far behind the requirements of the age, as the engine lathe of to-day is in advance of the hand tool of our fathers. He will then, instead of assuming superiority, indulge a humble and contrite spirit, and with others send thanks to C. F. and the SCIENTIFIC AMERICAN.—C. D., of Conn.

J. G., of N. J.—The nascent state of hydrogen or other gas is the state (by some thought an allotropic state) which the gas has at the moment of its liberation, either by electrolysis or ordinary chemical action, in which state gases act much more powerfully in combining than when once liberated and isolated. You will see therefore that this state exists in hydrogen at the moment of its liberation from combination, and that no particular process can be given for its production. A convenient way to illustrate the increased power of hydrogen at the instant of its liberation is to allow the gas, as produced from the decomposition of water by electrolysis, to pass into platinum sponge. The sponge absorbs it, and when placed in sulphate of silver, precipitates metallic silver, which ordinary free hydrogen will not do.

FRICION GEAR FOR SCREW CUTTING.—To E. C. J., query 2, February, 1872. You cannot cut screws by friction gear, with sufficient accuracy for any purpose, except wooden screws. These should be finished with the lat cut.—J. E. G., of Mo.

POUNDING OF PISTON.—I have noticed in "Notes and Queries" considerable discussion of the piston pounding question, and various theories have been advanced. I have often removed the trouble by setting up the springs in my piston packing, thereby preventing the shaking back and forth at every change of the direction of motion.—E. L., of N. Y.

Declined.

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

ADVERTISING.—L. K. F.

BOON TO THE TRAVELLING PUBLIC.—H.

BUILDERS' HARDWARE.—A. T. S.

CLAPBOARDING.—E. S. W.

MODELS AT THE PATENT OFFICE.—A.

NATIONAL DEBT.—J. R. F.

ORIGIN OF DISEASE.—A. B.

PATENT SYSTEM.—A. S. L.

ROTARY ENGINE.—G. R. W.

SUN SPOTS.—J. B.

WEATHERBOARDING.—J. L. G.

WILD TEA.—G. Z.

ANSWERS.—S. T.—O. A. B.—H. J. C.—D. H. N.—M. M.—W. E.—J. K. B.—D. O. T.

NOTES AND QUERIES.—G. A.—F. H. F.—F. H. A.—E. F. G.—J. M.—C. M.—G. W. M.—A. K.—R. M.—L. D. M.—D. B. H.

Inventions Patented in England by Americans.

From January 31 to February 7, 1872, inclusive. (Compiled from the Commissioners of Patents' Journal.)

SEWING MACHINE.—Howe Machine Company, Bridgeport, Conn.

SMELTING MECHANISM.—E. P. Terrell, D. B. Allen, J. Enoch, West Liberty, O.

SMELTING FURNACE.—S. W. Harris, Hudson, N. Y.

WEIGHING MACHINE.—A. H. Emery, New York city.