Second, The combination of a hammer, D, spring stem, D', crank shaf , a, and lever, E, operating substantially as described.
Third, The use of shelves, g g, adapted to support the hammer, D, when not in use, substantially as described.
Fourth, The application of a counterweight, h, which is suspended by a spring, k, to a hammer, or its equivalent, which is also suspended by a spring stem, substantially as described.

45,929.—Side-hill Plow.—Elijah McKesson, of Philips Mills, Pa.:

I claim, first, The double mold board, having a triangular front, corners to lock in the groove of the land side, and a pointed projecting termination, constructed, arranged and operating substantially as and for the purposes set forth.
Second, The combination of the shoes, 1 and 2, with the mold board and land side and share, when constructed, arranged and operating, substantially as described.

45,930.—Detachable Flat Top and Elevated Cooking Stove.—John McKnight, of Philadelphia, Pa.:

I claim, first, So constructing a cooking stove in two sections that it can be converted from a flat-top stove to an elevated oven stove, or vice versa, substantially in the manner and for the purpose herein set forth.
Second, The hollow projection, a', at the rear of the ash pit and below the fire grate, the said projection communicating with the flue, G, as and for the purpose specified.
Third, The detachable hollow casing, H, forming a communication between the ash pit, B, and flue, G, as and for the purpose set forth.

45,931.—Wrenches.—George Meader, of Ottawa, Ill.:

I claim as a new article of manufacture the adjustable wrench, constructed and operated as herein described.

45,932.—Carpenter's Gages.—George Miller, of Washington, D. C.:

I claim a gage, constructed substantially as described and for the purpose specified.

45,933.—Fire Chamber Clearer.—Geo. Rodney Moore, of Lyons, Iowa:

I claim the attachment of the plate or clamp, C, or its equivalent, to the grate, E, substantially in the manner and for the purpose set forth.

45,934.—Cultivators.—Elias C. Patterson, of Chicago, Ill.:

I claim, first, The curved levers, A B C D, constructed and operating substantially as described.
Second, The combination of the curved and straight levers, constructed and operating substantially as described.
Third, The combination of the curved and straight levers with the plows, constructed and operating substantially as described.
Fourth, The peculiar form and arrangement of the middle-rear plows, in connection and combination with the two outside rear plows, all constructed and operating substantially as described.

45,935.—Artificial Fuel.—F. C. Payne, New York City:

I claim, first, A fuel composed of a conglomerate of coal screenings, or small particles of coal, and hydraulic lime, substantially as herein described.
Second, The use of plaster of Paris with hydraulic lime, substantially as herein described, in cementing together coal screenings, or small particles of coal, to render the latter serviceable as fuel.

45,936.—Laths for Buildings.—Dewey Phillips, Shaftsbury, Vt.:

I claim tongued and grooved laths, formed with grooves in their surfaces, receiving the mortar, substantially as specified.

45,937.—Floor Covering.—Anson H. Pratt, Yellow Springs, Ohio:

I claim the application and use of figured or ornamented paper, printed with water colors, to floors, as a substitute for oil cloth, and carpets, as herein described, whether stationary or movable.

45,938.—Mangle.—William Price, Cincinnati, Ohio:

I claim encasing the working parts of a mangle, the case being so constructed and hinged as to let down and form the support for guiding the articles in a line between the pressing rollers and fold up, and close together so as to protect the working parts when not in use, substantially as herein specified.

45,939.—Car Coupling.—Martin Rinehart, Monroe, Mich.:

I claim the combination of the sliding block, A, apron, B, with the hook, C, and link, d, substantially as described and for the purpose set forth.

45,940.—Washing Machine.—George W. Sayre, Pisgah, Ohio:

I claim the combination of the adjustable oscillating frame, K provided with cranks, pitmen, pendants, and beaters; with the adjustable weight, L, and scroll bottom, B, arranged and operating in the manner and for the purpose substantially as describe .

45,941.—Condenser.—John M. Spiegle, Philadelphia, Pa.:

I claim the use, in connection with the air pump, of a condensing steam engine, of the perforated tubes, d and e, or their equivalents for introducing jets or streams of air into the water as it passes from the air pump to the hot well, as set forth.

45,942.—Horse Rake.—A. B. Sprout, Hughesville, Pa.:

I claim, first, Making a curved rake tooth, of a triangular sectional shape, (or its equivalent, semi-eliptical or semi-circular) and so applied that the flat side shall be on the inner side of the curve to endure the tensional strain, while the rear salient edge shall act as a stiffener to the tooth.
Second, I claim the combination of a tooth of a triangular sectional shape (or its equivalent, semi-eliptical or semi-circular) and with a flat side on the inside of the curve of the tooth, with a coiled spring by which it is attached to the head, and by means of which its elasticity is increased.
Third, I claim the plates, C c, adapted to be secured in position by the screw, c', substantially and for the purpose specified.
Fourth, I claim the spool, C2, c2, c3, constructed and arranged substantially as described, and adapted for the attachment of the spring, A, in the manner set forth.

45,943.—Piano Fortes.—Maurice Vergnes, New York City. Ante-dated Jan. 2, 1865:

I claim, first, The application to a clavichord instrument of a mechanism to operate a hammer upon a drum in the manner substantially as above described.
Second, The use of the slide, H, and the curb straps to hold the hammer in the condition to produce the roll of the drum, in the manner substantially as above described.

45,944.—Apparatus for Amalgamating Metals.—Owen G. Warren, New York City.:

I claim, first, Pouring quicksilver down through a sieve or strainer into a mass of comminuted ores and water, which has been subjected to a cooking process to gather the ores contained, in the manner substantially as above described.
Second, Obtaining the metals in their successive degrees of fineness by successive leeching with quicksilver poured down through a strainer into the ores and water, and successive gatherings of the amalgam formed, in the manner substantially as above described.

45,945.—Oil Lamp.—Edward Weissenborn, Hudson City, N. J.:

I claim the sponge, C, the follower, D, screw, E, and movable winged nut, F, applied in combination with each other, and with the oil cup, and operating substantially as herein specified.

45,946.—Screw Nicking Machine.—Jason A. Bidwell (assignor to himself, H. J. Litchfield, Daniel M. Robertson, and Asaph Churchill), Boston, Mass.:

I claim, first, The jaws, E E, sliding blocks, A A', and controling spring, K, when combined with each other, and with a circular saw, F, substantially in the manner and for the purpose herein set forth.
Second, The arrangement and combination of the sliding blocks, A A', with the upright, B, slotted side levers, O O, and operating lever, M, or their equivalents, substantially in the manner and for the purpose herein set forth.

45,947.—Casting Molten Metal.—Joseph De Rosthorn Vienna, Austria, assignor to Clemens Herschel, Davenport, Iowa:

I claim the improved method of operating to increase the density and strength of metallic castings, substantially as set forth.

45,948.—Grate.—Loomis G. Marshall, Mokena, Ill.: assignor to himself and F. W. Hughes, Pottsville, Pa.:

I claim a conical or angular shaped grate, formed of bars sloping from the inside to outside, as herein described and for the purposes set forth.

45,949.—Faucet.—Robert Murray, Boston, Mass., assignor to himself and James W. Tufts, Medford, Mass.:

I claim the improved faucet having its valve shaft arranged in the prolongation of the axis of its induction tube and pivoted in or at the inner end thereof, and made with its inner journal so channeled as to enable a fluid to pass into and through it while passing from the induction tube into the valve case, the faucet being in other respects as specified.

45,950.—Material for Making Boxes, etc.—Wm. Painter, Baltimore, Md., assignor to himself and Charles Painter, Owing's Mills, Md.:

I claim as a new article of manufacture the asphaltic board, made substantially as described, for the manufacture of boxes, packages, and other articles.

45,951.—Packing for Rifled Projectiles.—Frederika Schenkl, Boston, Mass., administratrix of John P. Schenkl, deceased, assignor to self and Edward A. Dana, Brookline, Mass.:

I claim the combination of a paper mache sabot, with a metallic ring at top, and a ring and disc of metal at the base to protect it, substantially in the manner described.

45,952.—Self-loading Fire Arms.—Christopher M. Spencer (assignor to Spencer Repeating Rifle Company) Boston, Mass.:

I claim, first, The compound magazine inserted in the stock of the piece, and consisting of two metallic tubes, constructed and operating substantially in the manner described.
Second, In a double tube magazine chamfering the inner side of the forward end of the inner tube, F, in the manner and for the purpose described.
Third, The arrangement of the groove, c, and catch, h, for conjoint operation, as specified.
Fourth, The combination and arrangement of the cap, G, arm, H, recess, d, and pin, d', substantially in the manner described.
Fifth, The combination of the receiver, B, tube, D, nut, E, and stock, A, in the manner and for the purpose set forth.

45,953.—Apparatus for Winding Thread from the Skein.—James Crutchett, Stroud, Eng. Patented in England Aug. 23, 1864:

I claim, first, The combination of the sliding arms, a a a a a a, figures 1, and 3, with the curved finger, d, for adjusting the apparatus to the size of the skein and the folding joint, G, for folding the same into a convenient portable form as above described.
Second, I also claim the application of the thumb screw, figure 6, with the slots, f f f f f, and the projections, g g g g g, for the purpose and in the combination above described.
Third, I claim the foregoing arrangement of the reel as illustrated in figures 1. 3, 4, 5, 6, in combination with the winding apparatus represented in figures 7, and 8, all for the purposes above described.

45,954.—Astronomical Instruments.—Charles Emmanuel, Paris, France:

I claim the astronomical instrument herein described, in which a theodolite, an equatorial and an ecliptic instrument are combined, affording the means of ascertaining immediately the position of the heavenly bodies in relation to the horizon, equator and the ecliptic substantially in the manner herein set forth.

45,955.—Steam Boiler.—Louis Emile Constant Martin, London, Eng. Patented in England April 28, 1864.:

I claim the arrangement of one or more fires substantially in the combination described, to generate the usual products of combustion, with one or more auxiliary incandescent fires, arranged on one or more refractory hearths, substantially as described, through which these usual products are carried, and which after being transformed into combustible gases pass through one or more flues into one or more chambers of combustion where these ultimate gases are ignited, and thus effect a large economy in fuel.

45,956.—Fire Bank.—Halsey H. Baker, New Market, N. J.:

I claim, first, A fire bank composed of a plate or combination of plates fitted to the fire-pot or fire box of a stove, range or furnace to lie upon the fire substantially as herein described.
Second, Providing such a fire bank with one or more openings and valves or shutters substantially as and for the purpose herein described.
Third, The construction of such a fire bank of two or more plates hinged together in such a manner as to fold substantially as herein described for the purpose of enabling it to pass through the door of a stove or furnace.
Fourth, Providing such a fire bank with a hook or loop, i, so applied in combination with a hinge or hinges that it will fold by gravitation when suspended by said hook or loop substantially as and for the purpose herein set forth.

45,957.—Coal Oil Stove.—William B. Billings, New York City:

I claim, first, The use and adaptation of the body or sides of the stove or range, D, to serve as and perform the office of a flue or chimney over the lamp or oil holder, A, substantially as described and for the purposes set forth.
Second, The attaching of one or more air guides, cones or deflectors in the diaphragm, C, and the adjustment of the same in the stove or range, F, substantially as described and for the purposes set forth.
Third, The arrangement of the diaphragms, C, and, g g, thus forming an air chamber between the oil holder and stove or range, substantially as described and for the purposes set forth.
Fourth A non-conductor of heat used a packing between the stove stove and the oil holder, arranged substantially as described and set forth.
Fifth, The insulation of the lamp or oil holder by non-contact with the heater, stove or range, substantially as described and set forth.

45,958.—Safety Brakes for Horse Powers.—Joseph C. Bird, Rising Sun, Md:

I claim in combination with the trigger or lever, D, the stop or catch which prevents it from rising beyond a given point, which would otherwise apply the brake without the parting or flying off of the belt, substantially as herein described.

45,959.—Rudder.—Thomas G. Crosby, Buffalo, N. Y., assignor to Bushnell Strong and Marjorie H. Crosby:

I claim constructing a rudder for vessels with concave sides as herein substantially set forth.

45,960.—Apparatus for Rendering Lard, &c.—Thomas Hopkins, Cincinnati, Ohio:

I claim, first, The collander C c c', formed and adapted to operate as set forth.
Second, The dipper D D,' d d,' d," formed and adapted to operate as set forth.
Third, In the described combination, I claim the devices F G G', g, H K, and L,' or their equivalents, for enabling a crane to be shifted from place to place.
Fourth, The grapple T U U', v, V, w, W X Y Z Z,' formed and operating substantially as set forth.

45,961.—Manufacturing Fertilizing Phosphates.—G. A. Liebig and E. K. Cooper, Baltimore, Md:

I claim the process substantially as described above, for producing a fertilizing phosphate containing soluble phosphates.

RE-ISSUES.

1852.—Mortising Machine.—Stephen S. Bartlett, Providence, R. I., and Thomas H. Dodge, Worcester, Mass., assignees of said S. S. Bartlett. Patented Sept. 24, 1861:

We claim, first, Giving the bed or table in a mortising machine two independent supports so that the upper support may be loosened to permit the bed or table being adjusted or placed in a horizontal or inclined position, while the bottom support prevents the table or bed from sliding or dropping down bodily during the operation whereby mortises can be cut perpendicular through the timber, or beveled to any angle required.
Second, So combining the bed or table in a mortising machine, with its supporting mechanism, as that said table or bed can be freely rocked back and forth by the operator upon a center or axis of motion above the support upon which it rests and turns, whereby mortises with perpendicular or inclined ends can be cut at the will of the operator substantially as and for the purposes described.
Third, The combination of the head piece, G, sliding head stock, L, and its lever adjusting fulcrum or collar, K, with lever, F, and arbor, E, substantially as and for the purposes set forth.
Fourth, The combination of the platform, B, and stand, D, with the main frame and supporting piece, f, substantially as and for the purposes set forth.
Fifth, So arranging, in a mortising machine the sliding or movable wrist or collar by which the change of motion of the arbor and chisel is obtained, as that it shall be above or higher than the platform upon which the material to be mortised rests, whereby it is comparatively free and safe from flying chips or dirt and other clogging matter.

1853.—Attachment for Tackle Blocks.—George Focht, Reading, Pa. Patented Sept. 28, 1858:

I claim so attaching a tackle block or pulley, that it may turn freely in all directions, and be retained in the proper relative positions with the rope when the strain on the rope ceases, substantially as described.
The combination of the stud piece of the pulley, with the spindle having a spiral spring around its other end, substantially as, and for the purpose described.
The combination of the stud piece of the pulley with a spindle, with plate, F, having a bell mouthed or flaring socket, as and for the purpose described.
Extending the sides or edges of the frame of the pulley over and beyond the edge of the wheel, and curling or rounding outward the edges of this frame, so as to present a smooth, rounded surface for the rope to strike against, thereby lessening the wear upon the rope substantially as described.

DESIGNS.

2,018.—Statuette.—Edward I. Kuntze, New York City.

2,019 to 2,023.—Carpet Patterns.—Elemir J. Ney (Assign or to the Lowell Manufacturing Company), Lowell, Mass. Six Cases.

2,024.—Group of Statuary.—John Rogers, New York City.

TO OUR READERS.

PATENT CLAIMS.—Persons desiring the claim of any invention which has been patented within thirty years, can obtain a copy by addressing a note to this office, stating the name of the patentee and date of patent, when known, and enclosing $1 as fee for copying. We can also furnish a sketch of any patented machine issued since 1853, to accompany the claim, on receipt of $2. Address MUNN & CO., Patent Solicitors, No. 37 Park Row, New York.

MODELS are required to accompany applications for Patents under the new law, the same as formerly, except on design patents, when two good drawings are all that are required to accompany the petition, specification and oath, except the Government fee.

RECEIPTS.—When money is paid at the office for subscriptions, a receipt for it will always be given; but when subscribers remit their money by mail, they may consider the arrival of the first paper a *bona-fide* acknowledgement of our reception of their funds.

BINDING.—Those of our subscribers who wish to preserve their numbers of the SCIENTIFIC AMERICAN for future reference, can have them substantially bound in heavy board sides, covered with marbled paper, and leather backs and tips, for $1,00 per volume.

INVARIABLE RULE.—It is an established rule of this office to stop sending the paper when the time for which it was pre-paid has expired.

novelty are carefully examined, and a written reply, corresponding with the facts, is promptly sent, free of charge. Address MUNN & CO., No. 37 Park Row, New York.

As an evidence of the confidence reposed in their Agency by inventors throughout the country, Messrs. MUNN & CO. would state that they have acted as agents for more than TWENTY THOUSAND inventors! In fact, the publishers of this paper have become identified with the whole brotherhood of inventors and patentees, at home and abroad. Thousands of inventors for whom they have taken out patents have addressed to them most flattering testimonials for the services rendered them; and the wealth which has inured to the individuals whose patents were secured through this office, and afterwards illustrated in the SCIENTIFIC AMERICAN, would amount to many millions of dollars! Messrs. MUNN & CO. would state that they never had a more efficient corps of Draughtsmen and Specification Writers than those employed at present in their extensive offices, and that they are prepared to attend to patent business of all kinds in the quickest time and on the most liberal terms.

PRELIMINARY EXAMINATIONS AT THE PATENT OFFICE.

The service which Messrs. MUNN & CO. render gratuitously upon examining an invention does not extend to a search at the Patent Office, to see if a like invention has been presented there; but is an opinion based upon what knowledge they may acquire of a similar invention from the records in their Home Office. But for a fee of $5, accompanied with a model, or drawing and description, they have a special search made at the United States Patent Office, and a report setting forth the prospects of obtaining a patent, &c., made up and mailed to the inventor, with a pamphlet, giving instructions for further proceedings. These preliminary examinations are made through the Branch Office of Messrs. MUNN &. CO., corner of F and Seventh streets, Washington, by experienced and competent persons. Many thousands of such examinations have been made through this office, and it is a very wise course for every inventor to pursue. Address MUNN & CO., No 37 Park Row, New York.

HOW TO MAKE AN APPLICATION FOR A PATENT.

Every applicant for a patent must furnish a model of his invention if susceptible of one; or, if the invention is a chemical production, he must furnish samples of the ingredients of which his composition consists, for the Patent Office. These should be securely packed, the inventor's name marked on them, and sent, with the Government fees, by express. The express charge should be pre-paid. Small models from a distance can often be sent cheaper by mail. The safest way to remit money is by a draft on New York, payable to the order of Messrs. MUNN & CO. Persons who live in remote parts of the country can usually purchase drafts from their merchants on their New York correspondents; but, if not convenient to do so, there is but little risk in sending bank bills by mail, having the letter registered by the postmaster. Address MUNN & CO., No. 37 Park Row, New York.

Patents are now granted for SEVENTEEN years, and the Government fee required on filing an application for a patent is $15. Other changes in the fees are also made as follows :—

On filing each Caveat	$10
On filing each application for a Patent, except for a design	$15
On issuing each original Patent	$20
On appeal to Commissioner of Patents	$20
On application for Re-issue	$30
On application for Extension of Patent	$50
On granting the Extension	$50
On filing a Disclaimer	$10
On filing application for Design (three and a half years)	$10
On filing application for Design (seven years)	$15
On filing application for Design (fourteen years)	$30

The Patent Laws, enacted by Congress on the 2d of March, 1861 are now in full force, and prove to be of great benefit to all parties who are concerned in new inventions.

The law abolishes discrimination in fees required of foreigners, excepting natives of such countries as discriminate against citizens of the United States—thus allowing Austrian, French, Belgian, English, Russian, Spanish and all other foreigners, except the Canadians, to enjoy all the privileges of our patent system (except in cases of designs) on the above terms. Foreigners cannot secure their inventions by filing a caveat; to citizens only is this privilege accorded.

CAVEATS.

Persons desiring to file a caveat can have the papers prepared in the shortest time by sending a sketch and description of the invention. The Government fee for a caveat is $10. A pamphlet of advice regarding applications for patents and caveats is furnished gratis, on application by mail. Address MUNN & CO., No. 37 Park Row, New York.

REJECTED APPLICATIONS.

Messrs. MUNN & CO. are prepared to undertake the investigation and prosecution of rejected cases, on reasonable terms. The close proximity of their Washington Agency to the Patent Office affords them rare opportunities for the examination and comparison of references. models, drawings, documents, &c. Their success in the prosecution of rejected cases has been very great. The principal portion of their charge is generally left dependent upon the final result.

All persons having rejected cases which they desire to have prosecuted, are invited to correspond with MUNN & CO., on the subject, giving a brief history of the case, inclosing the official letters, &c.

FOREIGN PATTENS.

Messrs. MUNN & CO., are very extensively engaged in the preparation and securing of patents in the various European countries. For the transaction of this business they have offices at Nos. 66 Chancery lane, London; 29 Boulevard St. Martin, Paris; and 26 Rue des Eperonniers, Brussels. They thing they can safely say that THREE-FOURTHS of all the European Patents secured to American citizens are procured through their agency.

Inventors will do well to bear in mind that the English law does not limit the issue of patents to inventors. Any one can take out a patent there.

Circulars of information concerning the proper course to be pursued in obtaining patents in foreign countries through MUNN & CO'S Agency, the requirements of different Government Patent Offices, &c. may be had, gratis, upon application at the principal office, No. 37 Park Row, New York, or any of the branch offices.

SEARCHES OF THE RECORDS.

Having access to all the official records at Washington, pertaining to the sale and transfer of patents, MESSRS. MUNN & CO., are at all times ready to make examinations as to titles, ownership, or assignments of patents. Fees moderate.

INVITATION TO INVENTORS.

Inventors who come to New York should not fail to pay a visit to the extensive offices of MUNN & CO. They will find a large collection of models (several hundred) of various inventions, which will afford them much interest. The whole establishment is one of great interest to inventors, and is undoubtedly the most spacious and best arranged in the world.

MUNN & CO. wish it to be distinctly understood that they do not speculate or traffic in patents, under any circumstances; but that they devote their whole time and energies to the interests of their clients.

COPIES OF PATENT CLAIMS.

MESSRS. MUNN & CO., having access to all the patents granted since the rebuilding of the Patent Office, after the fire of 1836, can furnish the claims of any patent granted since that date, for $1.

THE VALIDITY OF PATENTS.

Persons who are about purchasing patent property, or patentees who are about erecting extensive works for manufacturing under their patents, should have their claims examined carefully by competent attorneys, to see if they are not likely to infringe some existing patent, before making large investments. Written opinions on the validity of patents, after careful examination into the facts, can be had for a reasonable remuneration. The price for such services is always settled upon in advance, after knowing the nature of the invention and being informed of the points on which an opinion is solicited. For further particulars address MUNN & CO., No. 37 Park Row, New York.

EXTENSION OF PATENTS.

Many valuable patents are annually expiring which might readily be extended, and if extended, might prove the source of wealth to their fortunate possessors. Messrs. MUNN & CO. are persuaded that very many patents are suffered to expire without any effort at extension, owing to want of proper information on the part of the patentees, their relatives or assigns, as to the law and the mode of procedure in order to obtain a renewed grant. Some of the most valuable grants now existing are *extended patents*. Patentees, or, if deceased, their heirs, may apply for the extension of patents, but should give ninety days' notice of their intention.

Pateuts may be extended and preliminary advice obtained, by consulting, or writing to, MUNN & CO., No. 37 Park Row, New York.

ASSIGNMENTS OF PATENTS.

The assignment of patents, and agreements between patentees and manufacturers, carefully prepared and placed upon the records at the Patent Office. Address MUNN & CO., at the Scientific American Patent Agency, No. 37 Park Row, New York.

UNCLAIMED MODELS.

Parties sending models to this office on which they decide not to apply for Letters Patent and which they wish preserved, will please to order them returned as early as possible. We cannot engage to retain models more than one year after their receipt, owing to their vast accumulation, and our lack of storage room. Parties, therefore, who wish to preserve their models should order them returned within one year after sending them to us, to insure their obtaining them. In case an application has been made for a patent the model is in deposit at the Patent office, and cannot be withdrawn.

It would require many columns to detail all the ways in which the Inventor or Patentee may be served at our offices. We cordially invite all who have anything to do with patent property or inventions to call at our extensive offices, No. 37 Park Row, New York, where any questions regarding the rights of Patentees, will be cheerfully answered.

Communications and remittances by mail, and models by express (prepaid) should be addressed to MUNN & CO. No. 37 Park Row, New York.

Notes and Queries

F. N. B., of Wis.—Your plan for obtaining power by decomposing water by frictional electricity is met by this fatal objection, the power required to turn the machine would be at least a thousand times greater than the power of the expanding gases resulting from decomposition. Decomposition by electricity is in direct proportion to the quantity of electricity, and the quantity produced by a frictional machine is extremely small, though the intensity is very great. Faraday ascertained by direct experiment that the quantity of frictional electricity required to decompose one grain of water would be that furnished by 800,000 discharges of a battery of Leyden jars, exposing 3,500 square inches of surface charged with thirty turns of a powerful electrical machine.

H. N. B., of Conn.—If you can ascertain the facts in regard to the discovery of antimony in your neighborhood, a statement of them would be very acceptable. Or you might make a readable paragraph in relation to vermiculite, explaining its curious action on the fire. We regret that our space is too limited to permit the publication of your article.

S. J. E., of Ill.—You will find the calculations you require on page 105 of our last volume. We make no charge for them, but if we did it would be nearer $20 than 20 cents.

W. M., of Pa.—Prof. Treadwell's statement is that the pipe of double length will sustain the pressure of double weight of steam from the same boiler; in other words, it will hold twice as much steam of the same density and pressure.

F. F., of Mass.—Steel is burnished, or glossed, as you express it, on fine buff wheels, that is, wheels covered with buckskin or chamois leather and charged with rouge or fine crocus. We know of no method to put a fine blue on steel, except by the use of a sand bath.

T. J. W., of N. H.—Wire rope which is to be exposed to the weather is usually covered with asphaltum.

J. H. A., of Conn.—Gutta-percha is more costly than India-rubber. The solvents are the same for both gums, and rank about in the following order—the best being named first: bisulphide of carbon, chloroform, coal-tar naphtha, camphene, sulphuric ether, petroleum benzine, lamp oil. Lamp oil not being volatile cannot be separated from the solution, and therefore the gum can not be recovered from it. Neither of the gums is completely soluble after being vulcanized, though all of the solvents soften them.

E. G., of Kansas.—Every 33,000 pounds of water per minute falling one foot gives you one horse power. Water weighs 62½ pounds to the cubic foot. To ascertain the power of a stream, therefore, measure the area of the cross section of your stream, multiply this in feet by the velocity in feet per minute, by 62½, and by the fall in feet, then divide the product by 33,000, for the horse-power.

J. P. N., of Pa.—For an answer to your question in regard to the manufacture of paper from wood, see communication on another page. The paper on which the SCIENTIFIC AMERICAN is printed has one-third of its substance of wood. Several processes for preparing the fiber have been patented.

H. L. C., of Cal.—For bichromate of ammonia or other chemicals write to Scheiflin Brothers, of this city.

N. Q. S., of Pa.—The best method of removing earth-work depends upon the kind of earth. If it is hard clay, the plan is to cut into the hill till you have a vertical face of considerable depth, when you cut narrow channels at the base and sides, leaving a lump projecting some three feet, and this is then broken off by means of crowbars at the top. There are machines for excavating loose sand, but they would not be economical in a depth of only twelve feet.

O. H. K., of N. Y.—Enamels are properly glass—silicates of metallic oxides.

E. H. J., of R. I.—In order to prepare gun cotton for photographic uses you will do well to follow the directions given in Divine's Treatise or Fowler's Sunbeam, or any other good work upon the art.

S. G., of Conn.—Marine glue will hold the leather on your pulley. To make it, take four parts India-rubber, dissolve this in thirty-four parts coal-tar naphtha, warm, shaking it at the same time. Add to this sixty-four parts powdered shellac, which must be heated in the mixture until all are dissolved. When hot pour it all out on an iron plate in sheets, like leather. When wanted melt it in a pot like any other glue. Hilton's Insoluble Cement will also hold leather on iron, and will stand cold water but not hot. It is better to put three or four rivets in the wheel to help the cement. Leather can be fitted to valve seats by dove-tailing the seat, making the leather the width of the dovetail at the bottom, and crowding it in.

C. B., of Md.—At the great trial in Philadelphia Stevenson's turbine yielded 91 per cent of the power; this, so far as we know, is much more than has ever been yielded by an overshot wheel. Mr. Stevenson's address is, J. E. Stevenson, No. 200 Broadway, New York. You will find illustrations of his and several other turbines in back numbers of the SCIENTIFIC AMERICAN, all of which are claimed by their owners to be the best in the market. Turbines are not stopped by back water.

H. B. S., of Ohio.—In some States it is necessary for a man to have a license to sell any thing. He must conform to the State laws in regard to vending.

E. H. S., of Pa.—That petroleum is of vegetable origin is not doubted, but the mode of its formation is mysterious. There is no reason to suppose that the deposits are influenced in any way by the thickness of coal beds in their vicinity. The coal field west of the Mississippi lies between the parallels 34° and 45° north latitude, and 14° and 20° west longitude from Washington.

W. B., of Mo.—You will find many articles on silver-plating in back numbers of this paper.

Money Received

At the Scientific American Office, on account of Patent Office business, from Wednesday, January 11, to Wednesday, January 18, 1865:—

P. W., of N. Y., $25; H. B., of N. Y., $35; J. L. K., of N. Y., $35; J. S. L., of N. Y., $25; A. R. J., of N. Y., $25; E. F., of N. Y., $25; S. O. R., of N. Y., $25; J. F., of N. Y., $25; H. B., of N. Y., $25; H. H., of N. Y., $25; R. B., of N. Y., $120; S. B. H., of Pa., $12; S. W. P., of Mass., $50; H. C. K., of N. J., $25; I. R., of N. Y., $40; J. S., of N. Y., $40; F. L., of N. Y., $20; H. S., of N. Y., $15; B. J., of N. J., $20; J. W. N., of Conn., $20; W. E. R., of N. Y., $15; J. J. G., of Ohio, $20; D. F. P., of Conn., $40; I. M. R., of N. Y., $40; E. R. W. of N. Y., $15; J. A. M., of N. Y., $20; H. C. K., of N. J., $40; T. S. S., of N. Y., $45; J. W. R., of N. Y., $40; R S., of N. Y., $22; T. & J. B., of N. Y., $15; C. C., of N. Y., $20; H. W. W., of Pa., $20; D. W., of Pa., $20; J. W. H., of Iowa, $15; F. W. F., of N. Y., $20; O. H., of Ill., $20; E. N. P., of Wis., $22; C. L., of Ill., $20; N. S. T., of N. Y., $20; J. H. B., of N. J., $20; W. D., of Cal., $30; J. P., Jr., of N. J., $22; J. M. C., of U. S. A., $15; J. W., of N. Y., $20; J. Y., of N. Y., $20; D. H. M., of Conn., $40; G. W., of N. Y., $30; R. D., of N. Y., $40; P. C., of N. Y., $40; B. B., of Pa., $20; H. M. S., of Ohio, $20; E. B., of N. Y., $15; C. H. R., of N. Y., $20; H. H. W., of N. Y., $65; M. C. O'B., of Y. Y., $10; H. L. H., of N. Y., $10; J. H. H., of N. Y., $15; G. A., of Mich., $40; Von H. & A., of N. Y., $15; F. S. P., of N. Y., $15; R. E., of N. Y., $16; R. & H. V. F., of Ind., $35; J. K., of N. Y., $15; F. W., of Wis., $15; J. P. D., of Conn., $15; W. J. T., of N. Y., $15; F. J. C., of Pa., $16; A. D. D., of Ill., $15; H. F. B., of Mo., $50; J. G. V., of Conn., $35; O. H., of N. Y., $333; E. A. H., of Del., $50; T. W. B., of Mass., $25; H. W., of Mich., $25; F. A. S., of Mass., $10; J. H. V., of Conn., $30; J. P. E., of Ohio, $25; C. B. R., of Conn., $31; S. S. D., of Mass., $15; J. W., of N. J., $35; H. S. McK., of Pa., $25; J. L. & S. L. O., of Mass., $15; W. O. H., of N. J., $15; G. H. S. D., of N. Y., $100; S. S. S., of N. Y., $15; E. C. G., of B. C., $50; H. W. S., of Ohio, $15; S. P., of Ohio, $25; J. F., of Pa., $16; J. N. S., of Pa., $15; C. T., of Pa., $15; A. & Bros., of Conn., $16; J. S., of N. Y., $16; J. H., of N. Y., $25; P. M. R., of Cal., $15; W. Z. S., of Nevada, $25; J. H. J., of Ohio, $45; M. J., of Pa., $15; J. S. G., of Me., $15; J. L. K., of Pa., $15; J. R., of Mich., $40; H. & M., of N. J., $16; J. E., of Ill., $15; T. V., of R. I., $15; J. E. B., of Mass., $35; C. E. B., of Mass., $25; R. B. L., of Ohio, $25; E. B., of Mass., $15; D. G. H., of Mass., $15; W. C. B., of Cal., $45; L. S. S., of Mass., $216; H. K., of Pa., $25; M. & H., of Ill., $33; J. S., of N. Y., $15; A. J. P., of U. S. N., $16.

Persons having remitted money to this office will please to examine the above list to see that their initials appear in it, and if they have not received an acknowledgment by mail, and their initials are not to be found in this list, they will please notify us immediately, stating the amount and how it was sent, whether by mail or express.