

I won't lose more than my trouble. I will try to circulate them and get my money back if possible."

The following is gratifying to any who feel interested in the education and mental improvement of the young: "I cannot express to you what amusement your paper gives to my boys, nor what interest it awakens and fosters in them. The subscription is from their purses, and they prefer your weekly to any other they have received."

A Chicago friend writes as follows: "I have been burned out in the great fire (October 9, 1871), to the tune of ten thousand five hundred dollars, besides suffering many consequent inconveniences resulting from my losses, but I can go hungry a whole day and be merry; yet if I fail to get the SCIENTIFIC AMERICAN at its proper time, my equanimity is disturbed and I become a piece of broken machinery, "out of gear." I hope you will see to it that my paper is sent from your office as early as possible after it is printed."

SCIENTIFIC AND PRACTICAL INFORMATION.

THE RECENT ECLIPSE.

One section of the English expeditionary party in India chose Bekul, on the western coast of the Madras Presidency, as the point of observation. The chief results are published, and the existence of radial lines, well marked and distinct, in the corona is now established. These seem to demand our acknowledgment of the existence of forces extending outwards from the center of the sun. Their exact position and narrowness, says Mr. Proctor, force this conclusion upon us.

PYROLIGNEOUS ACID.

Professor Cox, State geologist of Indiana, has recently experimented with pyroligneous acid, and claims that his results give us some new light on its nature and constituents. The acetic acid of the drug stores is usually derived from crude pyroligneous acid, and the latter has thus been erroneously spoken of as an impure acetic acid; but in the experiments of Professor Cox, acetic acid burned, steadily but not rapidly, with a reddish purple flame full of scintillations, while the pyroligneous acid of commerce boiled away without sparkling. In another experiment, the Professor found that the vapor of pyroligneous acid extinguished the flame of burning paper, while that of acetic acid left it undisturbed, but did not itself ignite.

These facts do not appear to us to show that the two acids are different in their natures, as it is well known that acetic acid will burn, and that when diluted with water, as in pyroligneous acid according to the usual theory, it will not.

A RESISTING MEDIUM IN SPACE.

The retardation of Encke's comet, amounting to about two and a half hours in its period of three and a half years, has been frequently cited as a proof of the existence of a medium in space, of sufficient weight to resist a body of such extreme tenuity as a comet. This explanation of the mystery of space has been objected to by Professor Asaph Hall, who gives his reasons in the following words: "So far as the motions of comets have been determined, the evidence is against the theory of a resisting medium in space. Thus far, the observations of the planets lead to the conclusion that their motions are in strict accord with the law of gravitation; and in the disputes about the acceleration of the mean motion of the moon, no one has thought to seek its cause in a resisting medium, but much more probable causes are at hand. Encke's comet, therefore, stands alone in the strange anomaly in its motion which the calculations have shown. If it be proved that the diminution of the periodic time actually exists, this anomaly must be considered as a peculiarity of Encke's comet, and its cause must be sought for in something which distinguishes this comet from all others. It was early pointed out, by Olbers, I think, that this comet moves through those regions where the zodiacal light is seen. Possibly, also, the numerous meteoric streams which are moving around the sun, and which are closely connected with the orbits of some of the comets, may exert an influence on their motions."

BALANCING SLIDE VALVES.

A correspondent states that it is the common practice, with western engineers, to calculate only the areas of ports, in estimating the pressure upon slide valves with a view to balance them. We can scarcely credit this statement, and think our correspondent must be mistaken. If the faces of valve and seat are fitted steam tight, the entire pressure will be the product of the entire area of bearing surface and ports, in inches, multiplied into the pressure per square inch maintained in the steam chest. This, multiplied into the coefficient of friction existing between the surfaces, will give the force required to move the valve under such pressure when unbalanced. Practically, there are few valves that are perfectly fitted, or that remain so if properly fitted at first. Any sure method of balancing slide valves for general use should therefore provide for experimental adjustment.

THE SUN'S EFFECT ON THE MAGNETIC NEEDLE.

It was observed by D. Müller that the variation of the magnetic needle pursued its regular course till the commencement of the recent eclipse. It then began to retrace its steps until it reached its minimum declination at 1 h. 58 m., which was the instant of totality. After that moment, the ascending motion towards the west recommenced, and continued until the needle regained the exact position it had occupied when the eclipse began.

LE GÉNIE INDUSTRIEL.

We regret to learn that the journal of the brothers Armeingaud, published under the above title, is discontinued.

Forty volumes have been issued during the twenty years of its existence, and it had till lately an extended circulation and a justly acquired celebrity; but the recent disastrous war on French soil has paralyzed so many industries and impoverished so many mechanics and manufacturers that its publication became no longer a source of profit to its esteemed proprietors and editors, who look hopefully for the resuscitation of mechanical and industrial science in France at no very distant date.

WILL YOU FAVOR US?

Will subscribers to the SCIENTIFIC AMERICAN, who have duplicate copies of No. 1, 2, or 3, of this volume, or others who do not preserve their numbers for binding, re-mail back to this office what they are willing to spare?

At the commencement of the year, we printed several thousand more copies of each number than we had subscribers for, and as many as we anticipated a demand for; but subscriptions have come in so much faster than we expected that the first three numbers are nearly exhausted. The publishers will be obliged to any of their patrons if they return all or either of the above numbers. Address SCIENTIFIC AMERICAN, New York.

A GOOD MONTH'S WORK.

Since the first of last January up to February 5th inst.—a little over one month—201 United States patents have been issued to inventors whose specifications and drawings were prepared at the office of the SCIENTIFIC AMERICAN. This number, as large as it is, does not include a considerable number obtained through this office in foreign countries.

Death of Mr. Joseph B. Lyman.

Mr. Joseph B. Lyman, lately deceased, was for the last four years of his life agricultural editor of the New York Tribune, having previously filled a similar position on the New York World, and having edited at one time *Hearth and Home*. He had traveled much in many parts of the United States, and was thoroughly acquainted with agriculture in all the localities he had visited. Among the many friends who mourn his untimely death are most of the eminent men in journalism and agriculture on this continent.

THE submarine telegraph cable from Florida to Cuba, as we noted some time ago, was supposed to have been injured either by the bites of the sea turtles, or of some kinds of fish; and we now learn that in China a similar difficulty has been experienced in consequence of the attacks of a minute crustacean. This is so small as scarcely to be perceptible to the naked eye, but can be readily defined under the microscope. Various breaks have been satisfactorily referred to the agency of these animals, which had embedded themselves in the gutta percha. It has become necessary, therefore, to envelop the cables in certain localities with an external supplementary layer of metallic wire, in order to prevent injury in this manner.

PATENT INFRINGEMENT SUITS.—Francis and Loutrel *versus* Mellor and Rittenhouse, and the same *versus* Godfrey & Co., for infringement of plaintiffs' patents for making printing rollers of glue, glycerin and sugar. Judge McKennan, in the United States Circuit Court at Philadelphia, has rendered a decision adverse to the claims set up by Francis and Loutrel, and holds that they are not entitled to any broad claim as the first users of these ingredients, but are limited to the proportions substantially as described in their specifications.

MR. THADDEUS HYATT, formerly of this city, and the inventor of the glass covered gratings now so commonly used, has patented some new improvements connected with buildings, having for their object to render them fireproof. As a substitute for iron beams and brick arches for floors, he proposes wrought iron tubes, placed side by side. Other improvements consist of hollow bricks filled with plaster of Paris or alum, or other mixtures, which, like them, hold considerable water. Wire laths covered with similar compounds are also suggested, together with plasterings of the same materials.

THE experiments on beet root sugar made at the Amherst (Mass.) Agricultural college, during the past year, have been so successful that it is intended to ask the Legislature now in session to grant a charter to a company contemplating the manufacture on an extensive scale. They ask ten years immunity from taxation on account of the experimental nature and public importance of their enterprise. We hope the Legislature will grant the charter as asked for, and thus encourage a new industry in the old Bay State.

THE business address for the American Road Steam, George W. Fitts, inventor, illustrated in No. 6, is: American Road Steamer Company, 24 South Front street, Philadelphia, Pa.

Examples for the Ladies.

Mrs. Amelia Coutant, Brooklyn, N. Y., has had her Wheeler & Wilson Machine since June, 1869; has, besides other sewing, made 836 pairs of pantaloons, making as high as seven pairs a day, besides doing her own household work. She was self-taught, and has broken but two needles of the original dozen.

Miss Adelaide Perry, Bloomington, Ill., says: We have had our Wheeler & Wilson Machine in use eleven years without repairs, and it runs as well as the day it was bought. Last year I earned with it \$485.85, besides doing the sewing for a family of eight persons, and considerable other work.

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.

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

Nickel Plating without Battery. A new, superior, and infallible mode, for sale by W. F. Wuterich & Co., Harlem R. R. Building, White, near Elm Street, New York.

1000 Tuns Grindstones on hand—J. E. Mitchell, Phila., Pa.

New Castle, Nova Scotia & Ohio Grindstones—Mitchell, Phila.

Patent Self-acting Horse Holder for Sale. State Rights. Very simple. Can be attached to all kinds of vehicles. Will give them a vast preference. Saves life, property, &c. Address Abm. Quinn, 280 Marcy Avenue, Brooklyn, L. I.

For Sale—At 89 John St., Brooklyn, N. Y., one Trip Hammer and several portable Forges and Bellows.

Portable Mulay Saw Mill, that may be run profitably by the power of a Thrashing Engine. Manufactured by Chandler & Taylor, Indianapolis, Ind. Send for circular.

Daniel's Planer I want a good Second Hand or New one, to plane 24 feet long, for cash. C. Kratz, Evansville, Ind.

3 Power Presses, average weight 1000 lbs. Price \$175. Will make a washer at one stroke. J. E. Coxeter Winchester, N. H.

Wanted, a Second Hand Daniel's Planer. Parties having one to sell, address Centerville & Co., Box 704, New London, Conn.

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

To Barrel Manufacturers—Wanted a position as Superintendent, by a man who thoroughly understands the manufacture of Barrels by machinery. First class reference. Address Barrels, 1333 North 19th Street, Philadelphia, Pa.

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.

Wanted—A machine for stuffing Horse Collars with straw. Address A. J. S., Pendleton, S. C.

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.

Save your Boilers and Save Fuel. Use Thomas's Scale Dissolver, price 5c. per lb., in barrels 500 lbs. Remit to N. Spencer Thomas, Elmira, N. Y., and will ship by cheap freight.

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.

Foot Lathes and Castings for small Engines. E. P. Ryder, 252 Plymouth St., Brooklyn, N. Y.

The "Railroad Gazette" will be sent three months for \$1.00. Address at 72 Broadway, New York.

Sperm Sewing Machine Oil, in Bottles, Cans, and Barrels. W. F. Nye, New Bedford, Mass.

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.

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.

Edson's Hygrodeik is the best Hygrometer in use. Send for circular. Geo. Raymond, Fitchburg, Mass., Gen'l Agent for United States.

We will remove and prevent Scale in any Steam Boiler, or make no charge. Geo. W. Lord, 232 Arch street, Philadelphia, Pa.

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.

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

Williamson's Road Steamer and Steam Plow, with Thomson's Tires. Address D. D. Williamson, 32 Broadway, N. Y., or Box 1809.

Boynnton'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. Boynnton, 80 Beekman Street, New York, Sole Proprietor.

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. "Practical Suggestions on the Sale of Patents." Send for circulars. W. E. Simonds, Hartford, Conn.

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

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

For Steam Fire Engines, address R. J. Gould, Newark, N. J. 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 Tanners' 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 2 & 4 Horse Engines, address Twiss Bros., New Haven, Ct. Peck's Patent Drop Press. Milo Peck & Co., New Haven, Ct.

Vertical Engines—Simple, Durable, Compact. Excel in economy of fuel and repair. All sizes made by the Greenleaf Machine Works, Indianapolis, Ind. Send for cuts and price list.

Millstone Dressing Diamond Machine—Simple, effective, durable. For description of the above see Scientific American, Nov. 27th 1869. Also, Glazier's Diamonds. John Dickinson, 61 Nassau st., N. Y.

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.

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.