

reamer shank is put into place. The hole is then reamed, the reamer being driven by inserting the projecting end in a drill chuck. 4. Will the edge of the cutter head, G. No. 7, cut in wood? The edge being a right angle, instead of an angle of 60° or less, I should suppose it would scrape and tear instead of cutting. A. The cutter will cut without difficulty. 5. If M., or some one of your correspondents, would write a chapter upon a milling or planing attachment for the lathe, I am confident it would afford great satisfaction to many of your subscribers besides myself. A. You will find a chapter on milling attachments by "M." on page 340, vol. xl., SCIENTIFIC AMERICAN.

(23) F. L. W. asks: Can you give me any suggestions through your Hints to Correspondents, as to the best means of conducting water from my spring to my house, being situated about ten rods apart, the spring being about three feet lower than the house? My present mode of bringing it is by means of a pail suspended beneath a four wheeled iron car, which runs upon a track consisting of two wires. The track is built with sufficient grade as to cause the car to run to the spring and dip the pail. It is then drawn back by means of a cord attached to a wheel about two feet in diameter. By this means I am able at any time to obtain good fresh water, and can bring it right into the kitchen, but after building my new house my living rooms will be next to the spring and my kitchen on the back. Can I build my track on a curve so as to bring it to my kitchen? If not, what is the best means of conveying pure and fresh water from my spring to my house? A. You can work your car on a curve by proper arrangements. Would it not be better to sink a reservoir or cistern below the height of the spring and near or under your kitchen, lead the water from the spring to the reservoir by a pipe, and then pump the water for the uses of the house?

MINERALS, ETC.—Specimens have been received from the following correspondents, and examined, with the results stated:

B. J. & Co.—1. Syenite. 2. Limestone. 3. Traprock. 4. Hematite—iron ore. 5. Calcareous clay. 6. Quartzose rock—contains gold and probably silver. 7. Limonite—iron ore.—E. M.—Arsenopyrite—arsenical sulphide of iron. It contains a trace of nickel.—E. P. St. J.—1. Crocidolite. 2. Amianthus—asbestos. 3. Talco-schist. 4. Augite. 5. Alumite. 6. Talc.—F. M. D.—A fine variety of quartz sand.—J. J. S.—Iron sulphide—contains a little copper, arsenic, antimony, and probably traces of silver. 2. Quartz, with a little erbium. 3. Arsenical sulphide of iron and copper. 4. Powdered iron ore. 5. Powdered ferruginous and silicious limestone.—J. E. W.—Rich auriferous quartz—would probably assay about \$2,000 a ton.—J. J.—Biotite—a variety of mica—and orthoclase.

COMMUNICATIONS RECEIVED.

On a Telephone Hook Switch. By J. H. S. On a Petrified Human Skull. By T. G. H. Ship Railroad Across the Isthmus. By J. A. On a System of Weights and Measures. By D. B.

NEW BOOKS AND PUBLICATIONS.

UNITED STATES DEPARTMENT OF AGRICULTURE. SPECIAL REPORT (No. 23) ON THE CULTURE OF THE SUGAR BEET AND THE MANUFACTURE OF SUGAR THEREFROM IN FRANCE AND THE UNITED STATES. By William McMurtrie, E.M., Ph.D. Washington: Government Printing Office. 8vo, pp. 294.

A valuable study of the history, conditions, and success of the sugar beet industry in France, with suggestions applicable to the development of the industry in this country. Appendix A contains nearly half a hundred cuts of the more essential apparatus and machinery used abroad in the production of beet root sugar. The other appendices contain summaries of experiments made in this country and other related information.

ANNUAL REPORT OF THE BOARD OF REGENTS OF THE SMITHSONIAN INSTITUTION FOR 1879. Washington: Government Printing Office.

Contains, in addition to the annual report of the operations and condition of the institution, and related matters, a considerable number of important scientific papers much space being given to American anthropological researches.

REMINISCENCES OF DR. SPURZHEIM AND GEORGE COMBE. By Nahum Capen, LL.D. New York: Fowler & Wells.

The disciples of phrenology will welcome this sketch by one who was closely associated with Dr. Spurzheim during the closing months of his life, and who for nearly half a century has been prominent in that school of philosophy. The larger part of the book is devoted to a review of the progress of phrenology from the days of Gall to those of Combe.

CHIPS FROM THE WHITE HOUSE, COMPILED BY JEREMIAH CHAPLIN. Boston: D. Lothrop & Co.

An unobjectionable book, whose reason for existence is not apparent. It is made up of selections from the speeches, conversations, diaries, letters, and other writings of the several Presidents of the United States.

THE LOCOMOTIVE. Published by the Hartford Steam Boiler Inspection and Insurance Company. New Series. Vol. I. Hartford, Conn.

The first twelve numbers of the Locomotive in its new form make a modest octavo book of some 200 pages, well packed with valuable information relative to boilers and boiler explosions. The publishers give little countenance to the "mysterious" in boiler accidents so-called, believing that boilers do not explode when properly made and managed. They recognize four causes of explosion: bad material; faults in type; bad work in construction; and inefficiency and carelessness in management. From this point of view boiler explosions are not so much accidents as crimes.

REPORT OF THE BOARD TO RECOMMEND A STANDARD GAUGE FOR BOLTS, NUTS, AND SCREW THREADS FOR THE UNITED STATES NAVY, May, 1868. Washington: Government Printing Office. 1880.

An examination of the systems of bolts and nuts in general use, with the reasons which led to the recommendations of the system of Mr. William Sellers, for use in the American navy.

CONCISE DESCRIPTION OF THE EAST RIVER BRIDGE. By E. F. Farrington, Master Mechanic. New York: C. D. Wynkoop. Paper, 50 cents.

In this pamphlet of 62 pages Mr. Farrington has given an interesting popular account of the manner in which the great work has been carried on, with details of construction and kindred matters. The accompanying engravings are in the best sense of the word illustrations.

[OFFICIAL.]

INDEX OF INVENTIONS

FOR WHICH Letters Patent of the United States were Granted in the Week Ending

March 8, 1881.

AND EACH BEARING THAT DATE.

[Those marked (r) are reissued patents.]

A printed copy of the specification and drawing of any patent in the annexed list, also of any patent issued since 1866, will be furnished from this office for one dollar. In ordering please state the number and date of the patent desired and remit to Munn & Co., 37 Park Row, New York city. We also furnish copies of patents granted prior to 1866; but at increased cost, as the specifications not being printed, must be copied by hand.

Table listing inventions and their patent numbers, including items like 'Aluminous cake, manufacture of, C. Semper', 'Aldiphone, C. Davaea', 'Axe box, car, A. Higley (r)', 'Bag lock, A. Bratt', 'Baking powder, C. A. Catlin', 'Barrel forming machine, S. Wright', 'Barrel head, T. G. Turner', 'Bed bottom, spring, H. A. Dalrymple', 'Bed bottom, spring, Walmer & Emery', 'Bed, metallic spring, P. H. Mellon', 'Bedstead, sofa, C. Streit', 'Bedstead, wardrobe, A. L. & C. A. Warner', 'Bell boat, W. R. Close', 'Billiard chalk holder, J. H. Alexander', 'Billiard table chalk holder, J. Jefferson', 'Bitters, S. A. Groff', 'Boiler furnace, steam, J. Alves', 'Bookbinder's press, J. W. Jones (r)', 'Book, scrap, F. Bowman', 'Boot and shoe sole, L. Slessinger', 'Boot and shoe sole trimming machine, J. W. Dodge', 'Bottle holder, M. Korff', 'Bottle stopper, C. B. Sponsler', 'Bouquet holder, T. W. Ryder', 'Bracelet, R. Oliver', 'Brooch machine, G. Logan', 'Brooches and pins, safety fastening for, Zierleyn & Carstens', 'Buckles, manufacturing, W. F. Osborne (r)', 'Burglar alarm, R. G. Dudley', 'Button and fastening, combined, G. W. Prentice', 'Button, separable, J. F. Blood', 'Cages, fastening for intersecting wires of, M. J. Stark', 'Camera plate holder, M. Flammang', 'Can protector and lifter, S. W. Brown', 'Candies, cakes, etc., manufacture of, I. W. Hey-singer', 'Car brake, H. Hitchcock', 'Car brake, A. F. Martel', 'Car brake and starter, A. E. Hoadley', 'Car coupling, D. M. Elliott', 'Car coupling tool, M. M. Kirby', 'Car, freight, G. D. Benjamin', 'Car running gear, street, J. Stephenson', 'Car wheel, A. Rogers', 'Cars, safety step for freight, C. Carpenter', 'Carding machine, wool, W. E. & H. W. Bosworth', 'Carpet sweeper, W. J. Drew', 'Carriage top, H. Lines', 'Carriage top, child's, Galt & Blaisdel', 'Carriage top prop block, J. Watters', 'Caster, furniture, O. S. Garretson', 'Caster, trunk, C. E. Crone', 'Casting metals, method of and apparatus for, W. McElroy', 'Centrifugal machine, T. Shaw', 'Chair head rest, C. J. Petersen', 'Chair seat, G. E. Davis', 'Churn, rotary, R. Murphy', 'Cigar machine, O. Hammerstein', 'Cigarette machine, J. A. Bonsack', 'Clutch, machinery, F. Dubrul', 'Coffins, pedestal for supporting, A. B. Russ', 'Coke oven lorries or tramway cars, device for operating, D. Carlin', 'Collar, horse, L. Guinnip', 'Collars and cuffs, machine for folding and shaping, J. G. Crawford', 'Compasses, card and magnetic needle for mariners', Lewis & Brown', 'Cooking vessels, calorific safe for, J. M. Harney', 'Corset busk, W. Bowers', 'Corset spring clasp, J. N. Thomson', 'Cot chair, folding, C. W. Soule', 'Cotton, hay, and tobacco press, W. W. Louis', 'Cradle, swing folding, V. A. Menezes', 'Crib and cradle combined, folding, J. B. Brolaski (r)', 'Cryptography, C. G. Burke', 'Fish, butter, A. Conradt', 'Ditching machine, Carter & Rennie', 'Dress shield, G. L. Witsil', 'Drills, adjusting attachment for the posts of power, C. P. Purinton', 'Drying apparatus, Scholfield & Schutte', 'Drying oleaginous and other substances, apparatus for, G. B. Boomer', 'Dyeing machine, W. McAllister', 'Earthenware vessel, J. P. Sherwood', 'Egg beater, T. W. Brown', 'Electric machine, dynamo, O. Lugo', 'Electric machine, dynamo or magneto, C. E. Ball', 'Elevator, J. B. Underwood', 'Embroidery, manufacture of, J. Wiget', 'Eyeglass frame, L. Baum', 'Farm gate, J. M. Chay', 'Feeder for boilers, surface, C. N. Petesch', 'Fence, J. P. Brook', 'Fence, J. F. Johnson', 'Fence, metallic, W. H. Reicheneker', 'Fifth-wheel, C. Atwood', 'Firearm, magazine, W. Trabue', 'Fire escape, C. Barlow', 'Flanging circular plates, machine for, M. W. Shapley', 'Fog signals, bell tower for, W. R. Close', 'Folding chair, L. C. Hayden', 'Folding chair, F. F. Parker', 'Foot rest, T. G. Maguire', 'Furniture, combined piece of, C. F. C. Knaut', 'Gas generator hydrocarbon, P. J. Fitzgerald', 'Gate wheel, hinged, W. H. Wright', 'Gearing, I. E. Merritt', 'Glass and smelting metals, pot and crucible for making, E. Rosenz', 'Glove clasp, J. Tréousse', 'Gold washing machine, S. P. Bressler', 'Governor, steam engine, P. Jordan', 'Grain binder, S. V. Essick', 'Grain binding machine, C. L. Travis', 'Grain, device for unloading and conveying, G. D. Benjamin', 'Grain drill, S. B. Hart', 'Grain drill, J. T. West', 'Grate, agitating and dumping, F. S. Bissell', 'Grinding grain, roller mill for, W. D. Gray', 'Harrow, C. S. Giger', 'Harrow, D. W. Scobie', 'Harrow, disk, J. S. Corbin', 'Harvester thrasher, W. J. Little', 'Horse detacher, G. W. Healey', 'Horse rake, E. L. Smith', 'Hose plug, E. M. Zerbe', 'Hydrocarbon furnace, J. L. Kite', 'Injector, L. Schutte', 'Injector and condenser, exhaust steam, J. Wheel-lock', 'Iron and steel, process of and compound for treating, A. H. Siegfried', 'Iron in reverberatory or other furnaces, blast apparatus for treating, F. Württemberg', 'Ironing table, shirt, R. Brenner', 'Knives, etc., machine for grinding, L. J. Baker', 'Lambrequin, moulded fibrous, A. B. Replogle', 'Lamp, P. Casamajor', 'Lamp, J. L. Forsyth', 'Lamp, library, R. Marsh', 'Lard and similar substances from barrels, etc., apparatus for removing, R. S. Jennings', 'Latch, locking, G. W. Tallman', 'Leather, machinery for scouring and setting out, C. Holmes', 'Level, plumb, H. Hobson', 'Life saving chair, A. Wilson', 'Loom, Crompton & Wyman', 'Loom let-off motion, J. Cocker', 'Loom picker stick, S. C. Clatur', 'Loom reed, T. Stewart', 'Lubricator, J. Gates', 'Lubricator, C. H. Parshall (r)', 'Magnetic from non-magnetic substances, machine for separating, C. Wheeler, Jr.', 'Mangle, J. G. Crawford', 'Measure, rotary, L. W. Brown', 'Mechanical motor for churns, etc., J. N. B. Lusk', 'Medical compound, J. Keller', 'Milk cooler, P. L. Porter', 'Mole or gopher trap, H. W. Hales', 'Mosquito bar, H. Dunlap', 'Mucilage holders, stopper for, S. S. Newton (r)', 'Muff, A. Pass', 'Netting frame, mosquito, A. H. Bailey', 'Nut lock, W. A. Ducker', 'Nut lock, J. R. Jones et al.', 'Oils or solvents from fixed oils, apparatus for separating volatile, H. T. Yaryan', 'Ordnance, mounting and operating, A. Krupp', 'Overflow indicator, J. P. Conlon', 'Package fastener, P. A. O'Malley', 'Paint can, C. E. Hore', 'Pantaloons, J. H. Clyde', 'Paper pulp engine, J. R. Abbe', 'Pavement, J. Murphy', 'Pen and pencil case, L. P. Warth', 'Permutation lock, F. G. Farnham', 'Permutation lock, O. E. Pillard', 'Pianoforte, R. Howson', 'Pianoforte, W. F. Ulman', 'Picture book, J. H. Walker', 'Pigment and manufacturing the same, white zinc, T. Griffiths', 'Pin for neckwear shields, W. W. Fichtenberg', 'Plating machine, F. R. Smith', 'Plating machine, wood, S. S. Hazeland', 'Planter, S. Mowry', 'Planter and fertilizer distributor, cotton, Wick-liffe & McCarter', 'Planter and guano distributor, cotton seed, Hood & Tift', 'Plover wrought iron, J. G. Cockshutt', 'Pocketbook, J. G. Arms', 'Polisher, elastic, A. T. Harper', 'Power and imparting motion, mechanism for transmission of, J. D. Morrison', 'Pressure brake, fluid, W. P. Thompson', 'Printing and embossing plates, producing relief line, C. Snelder', 'Printing machine, Anthony & Taylor', 'Printing presses, cushioning device for, W. Scott', 'Proof press, W. Quail', 'Pulley, belt, P. Medart', 'Pulley, dead, M. H. Smith', 'Pulley, sash, C. H. Bayley', 'Pump, D. Gilbert', 'Pump, W. F. Mattes', 'Pump, air, W. R. Boerner', 'Pump bucket, chain, S. F. Lockwood', 'Pump plunger, F. M. Sherman', 'Pump, W. H. Strge', 'Pump, vacuum, G. F. Badger', 'Radiator, steam, L. C. Rodier', 'Railway crossing, C. H. Morgan', 'Refrigerator, filter, and water cooler, combined, M. Greenebaum', 'Rock crusher, J. F. Golding', 'Rotary cutter, L. H. Page', 'Rotary engine, E. Medden', 'Rowboats, sliding seat for, McFarren, Jr., & Field', 'Rubber and gutta percha cloth, manufacture of India, C. A. Evans', 'Safe and extension dining table, combined kitchen, T. Erdin', 'Salt, manufacturing, J. Curran', 'Sash fastener, E. J. Steam', 'Sash fastener, W. H. Wofrath', 'Saw, E. Osgood', 'Saw cleaner for cotton gins, S. G. Cabell', 'Saw gummer, A. W. Clark', 'Scow, dumping, F. Pigeon', 'Sewing machine, G. Benson', 'Sewing machine motor, electro-magnetic, G. F. Green', 'Shaft coupling, C. E. Marston', 'Sheave, C. Ellis', 'Sheet metal cutter, E. M. Wilbor', 'Ships' bottoms, apparatus for scraping, J. West-berg', 'Shirt, G. Jaeger', 'Shoe nails, device for cutting, O. R. Chaplin', 'Shutter worker, R. G. Dudly', 'Shutter worker, J. S. O'Brien', 'Shutter worker, P. S. Robinson', 'Signs, composition for producing non fading, J. Budd', 'Snap hook, J. G. Perry', 'Snow plow, G. J. Harding', 'Soldering apparatus, can, G. H. Gildersleeve', 'Spading machine, rotary, J. Schuchard', 'Spinning machine, Deal & Greeley', 'Spinning machines, thread contractor for, E. Kilburn', 'Stave steaming apparatus, E. & B. Holmes', 'Steaming apparatus, grain, J. F. Jensen', 'Steering boats in train, W. Frick', 'Stone or marble, artificial, D. G. Weems', 'Stove, coal oil, C. Riessner', 'Straw carrier attachment for separating grain from straw, J. S. Scott', 'Straw elevator, M. F. Hartman', 'Sugar refining, process of and apparatus for, S. M. Lillie', 'Syringe, L. M. Adams', 'Telegraph apparatus, chemical, C. A. Randall', 'Telegraph, multiplex, H. C. Nicholson', 'Telephone, F. Blake', 'Telephone, acoustic, H. Willard', 'Telephone call bell, M. L. Baxter', 'Telephone lines, signaling apparatus for, J. D. Richardson, Jr.', 'Telephone, speaking, F. Blake', 'Telephonic apparatus, H. Howson', 'Therapeutical chair, electro, C. C. Sharp', 'Thill coupling, J. Bozorth', 'Thill coupling safety attachment, F. J. Flowers', 'Thrashing machine, L. & A. Y. Gray', 'Tire shrinking machine, G. W. Kemper', 'Tobacco compress, J. T. Drummond', 'Toy pail, E. Aldom', 'Toy pistol, H. Klassert', 'Tray and meal server, table, W. W. Reid', 'Truss, S. M. Bayard', 'Tubes, device for bending metal, W. H. Grubb', 'Tug fastener, D. H. Smith', 'Tuyere, J. M. Hartman', 'Valve, puppet, J. Hemphill', 'Vapor burner, G. W. Billings', 'Vapor burner, G. W. Clough (r)', 'Vehicle spring, H. S. Clark', 'Vehicle tops, shifting rail for, D. Conboy', 'Wagon bolster spring, J. R. Calhoun', 'Wagon brake, S. G. Thacker', 'Wagon running gear, M. Conrad', 'Wagon spring, W. R. Adams', 'Washing machine, W. Carter', 'Washing machine, D. T. Davis', 'Water supply valve, P. Harvey', 'Waterwheel, turbine, R. J. Brisack', 'Wheat, apparatus for bluestoning, J. W. Blevin', 'Wheat, etc., apparatus for decorticating, J. Cornwell', 'Wool opening and cleaning machine, S. R. Park-hurst', 'Yoke for draught animals, neck, A. Harley', '238,727', '238,728', '238,521', '238,645', '238,648', '238,670', '238,556', '238,678', '238,602', '238,579', '238,739', '238,624', '238,691', '238,571', '238,664', '238,604', '238,716', '248,483', '238,710', '238,501', '238,580', '238,532', '238,492', '238,595', '238,698', '238,692', '238,671', '238,623', '238,523', '238,719', '238,584', '238,509', '238,477', '238,713', '238,707', '238,558', '238,740', '238,746', '238,715', '238,557', '238,659', '238,721', '238,561', '238,670', '238,748', '238,594', '238,493', '238,479', '238,596', '238,526', '238,481', '238,582', '238,537', '238,503', '238,685', '238,633', '238,634', '9,602', '238,449', '238,652', '238,567', '238,730', '238,487', '238,478', '238,568', '238,660', '238,504', '238,644', '238,637', '238,489', '238,709', '238,691', '12,184', '12,182', '12,183', 'English Patents Issued to Americans.', 'From March 4 to March 8, 1881, inclusive.', 'Bottle cleaner, J. M. Hoyt, Lynn, Mass.', 'Bottle stopper, R. Robinson, Brooklyn, N. Y.', 'Door hanger, E. Prescott, Hampton Falls, N. H.', 'Dressed material, treating, F. A. Bishop, San Francisco, Cal.', 'Hose coupling, J. H. Hubbell et al., Boston, Mass.', 'Journal bearing, R. Jones, Braddocks, Pa.', 'Light, beacon, J. M. Foster, Philadelphia, Pa.', 'Link, open, W. A. Ingalls, Providence, R. I.', 'Loom, F. O. Tucker, Hartford, Conn.', 'Ordnance, N. B. Clark, Philadelphia, Pa.', 'Organ reed, J. Morgan, Brooklyn, N. Y.', 'Screws, moulding apparatus for casting, W. A. Ingalls, Providence, R. I.', 'MESSRS. MUNN & CO., in connection with the publication of the SCIENTIFIC AMERICAN, continue to examine improvements, and to act as Solicitors of Patents for Inventors.', 'In this line of business they have had thirty-five years' experience, and now have unequalled facilities for the preparation of Patent Drawings, Specifications, and the prosecution of Applications for Patents in the United States, Canada, and Foreign Countries. Messrs. 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